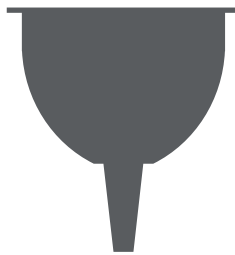


DIVIDED BY YOU

Divided.



*by
you.*

(creating flexible walls with functions)
HELSINKI . FINLAND . 2015

SARA . PEREYRA

SARA PEREYRA

.....

SCHOOL OF ARTS, DESIGN & ARCHITECTURE
MASTER OF ARTS IN SPATIAL & FURNITURE DESIGN

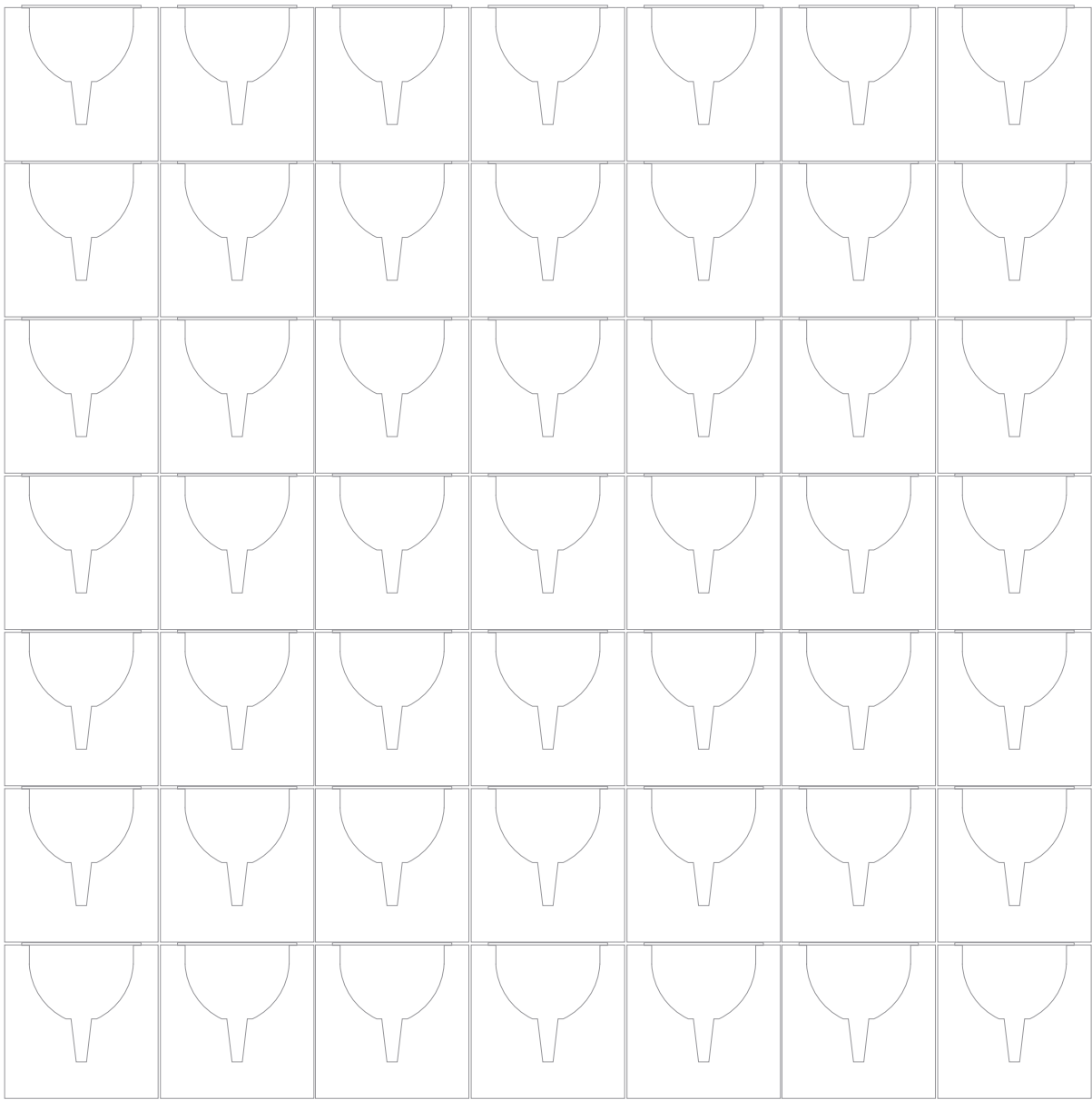
AALTO UNIVERSITY
MAY 2015

SARA CASILLAS PEREYRA

TUTORS
MARCO RODRIGUEZ & NATHALIE LAHDENMAKI

.....

SARA PEREYRA



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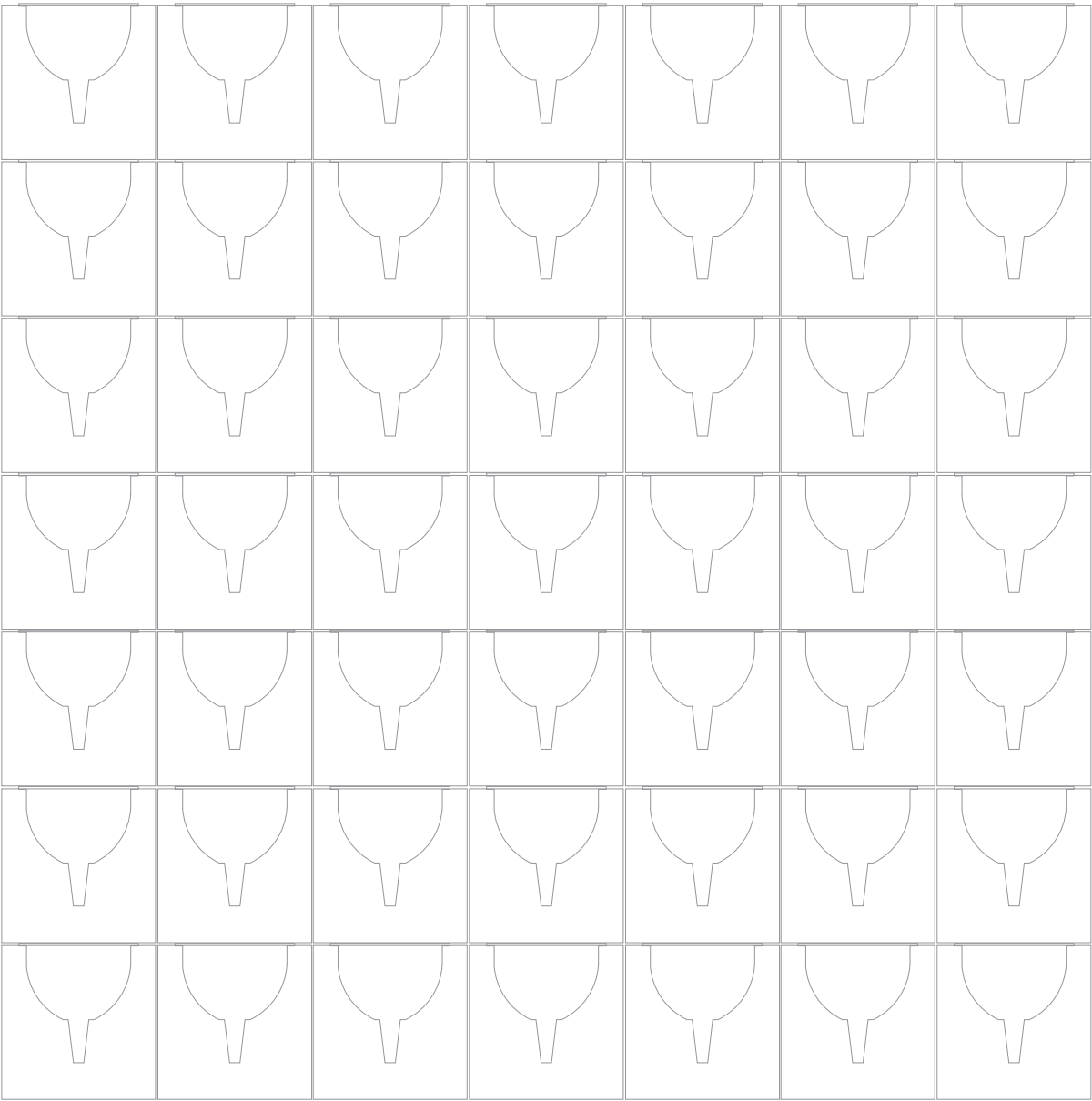


Table of Content

ACKNOWLEDGMENTS ABSTRACT

1. INTRODUCTION	15
2. OBJECTIVE	25
3. BACKGROUND / HISTORY	31
3.1 LATTICES AND FACADES	31
- (Exterior design approach)	
3.1.1 DEFINITION	35
3.1.2 ISLAM	36
3.1.3 COBOGOS	38
3.1.4 CINDER BLOCK	40
3.1.5 BRICKS	42
3.2. SPACE DIVIDERS	45
- (Interior design approach)	
3.2.1 DEFINITION	49
3.2.2 RONAN AND ERWAN BOURULLEC	50
3.2.3 CHARLOTTE PERRIAND	54
3.2.4 CONTEMPORARY FURNITURE USING SIMILAR PRINCIPLES	56
3.3 FLEXIBILITY IN SPACE	59
- (Interior design approach)	
3.3.1 HOW CAN WALLS BE MORE FUNCTIONAL & MAKE SPACES MORE FLEXIBLE?	60
3.3.2 DO IT YOUR-SELF & PRODUCT INTERACTION	64
4. WELL BEING	69
- (Interior and exterior design approaches)	
4.1 DEFINITION	72
MATHIAS GOERITZ – EMOTIONAL ARCHITECTURE	
4.1.1 ARCHITECTS WHO HAVE CONSIDERED THE WELL-BEING IN THEIR DESIGN	74
LUIS BARRAGAN	
ALVAR AALTO	
4.1.2 COMPANIES WHICH HAVE CONSIDERED PEOPLE’S WELL-BEING	76
ITTALA	
MARIMEKKO	
4.1.3 HOW CAN PLANTS MAKE OUR EVERYDAY LIFE BETTER?	78
5. SUSTAINABILITY	83
- (Interior and exterior design approaches)	

6. PROPOSAL / TWO DIFFERENT APPROACHES	89
6.1 INTERIOR DESIGN PROPOSAL CONCEPT	92
AIM OF THE PRODUCT	
MULTIFUNCTIONAL	
STACKABLE	
CHANGEABLE & INTERACTIVE	
CREATE YOUR OWN STYLE / IDENTIFY WITH THE PRODUCT / I AM	
LITTLE RITUALS	
6.1.1 FIRST & SECOND PROTOTYPE	104
6.2 EXTERIOR DESIGN PROPOSAL	120
FAÇADE & SOCIAL INTERACTION	
6.2.1 MODEL	125
7. PRODUCTION & MATERIAL	129
7.1 CERAMIC	133
STEPS: PLASTER-MOLD MAKING, CASTING, FIRING, GLAZING & FIRING.	
7.2 GLASS	144
STEPS: CNC-MOLD MAKING, GLASS BLOWING, COLD WORK & SAND BLASTING	
7.3 WOOD	152
7.3.1 CNC MACHINE	
7.4 METAL	167
7.4.1 COPPER	
7.5 LASER CUT	175
7.6 3D PRINTING	
7.7 LIGHTING SYSTEM	
8. CONCLUSIONS	181

SARA PEREYRA



Picture - Sara Pereyra

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KIITOS.THANK YOU.GRACIAS.

*First of all I want to thank my Family in Mexico
for the support & encouragement
ALWAYS*

*Special thanks to Geoffrey Farmer, Eduardo Sarabia & Dieresis Gallery
without their support probably I would not be here now
Humberto Moro*

*Many thanks to the Mexican Government for giving me a scholarship
Aalto University*

Marco Rodriguez & Nathalie Lahdenmäki for supervising this thesis.

*My friends in Mexico & Finland, especially Hanna-Kaarina Heikkilä & Salla Luhtasela
for the feedback, advice, support & friendship.*

Zeno Legner who made the video and took the pictures.

THE UNIVERSE



A black and white photograph of a large-scale abstract sculpture. The sculpture is composed of numerous identical, rounded, pointed forms arranged in a dense, repeating grid pattern. The forms are made of a textured material, possibly concrete or stone, and are set against a plain white background. The lighting creates strong shadows, emphasizing the three-dimensional quality and the rhythmic repetition of the forms.

ABSTRACT .

ERICH COUFAL, HOUSE OF CRAFTS OF JALISCO, PICTURE : SARA PEREYRA

...
THE
THESIS IS
DIVIDED INTO TWO
DIFFERENT
SOLUTIONS
USING THE SAME
PRODUCT...

Open screen walls and space dividers have existed for a very long time. As for lattices, their materials can easily be found, such as bricks, tiles, concrete blocks and vitro-blocks. In terms of space dividers, furniture, curtains and sliding doors are commonly used. However, in general, lattices and space dividers lack functions and are boring.

This thesis answers the following question:

How can the screen walls/ furniture be improved to meet contemporary needs?

The thesis is divided into two different solutions using the same product. The first idea is to create a screen or lattice system that can be implemented by architects and engineers in the façade of a building, the second idea is related to interior design and aims to develop a wall that works as a space divider and offers different functions and flexibility in space. Using the same wall.

The functions in both cases range from, for instance, providing certain privacy to a space, protecting from the sun and supplying shade to a terrace, without com-

promising brightness and visibility from the inside to dividing the kitchen from living-room by implementing a growing herbs system, among others.

The two systems also try to provide a sustainable design that further improves the human wellbeing.

EXTERIOR DESIGN APPROACH / FACADES / ARCHITECTURE

Because screens and lattices inspired these walls, this thesis reviews their history, the ways they are also related to cultures and the reasons for their importance in the past and for people still living in these buildings. These screens want to replace the bricks, wooden structures, ceramic blocks, and vitro blocks, that architects have always used as a method of hiding things from the façade but still allowing the sunlight and air to get in the building. The exterior design approach differs from the interior design one in that these walls will be fixed and will provide only one function; nevertheless, they are meant to promote the social interaction among the inhabitants of a building.

INTERIOR DESIGN APPROACH

The space dividers developed in this thesis are inspired by the concept of do it yourself, flexibility in space and modularity and the paper contains a research based on these theories. The walls are designed in a gentle and uncomplicated mode for users to be able to choose and build according to their needs. An interior design element needs to be easy to assemble by any human being in such a manner that once users have the measure of the space, they are able to go straight to the supplier, choose their divider and come home and install it. Moreover, the wish to give people a prefabricated system comes from the concept of flexibility in space. Finally, the design must be user friendly, in other words, a collaboration between the client and the designer. Particularly in this case, something is already designed but the client decides the function and the amount of them to change their space according to either their style, space or needs.

The goal regarding both the interior and exterior design was to experiment with several materials and functions. As a result, a brochure was produced of the several material options: wood, ceramic, glass and metal. Although the proposal for interiors could be implemented in almost any country, unfortunately the open screen wall for façade would only work in countries with warm weather.

...
MUST BE
USER FRIEND-
LY, WHICH MEANS
THAT I WANT IT
AS A COLLABORA-
TION BETWEEN THE
CLIENT AND THE
DESIGNER
...

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1 INTRODUCTION.

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Picture - Sara Pereyra / Cobogo / Sao Paulo, Brasil

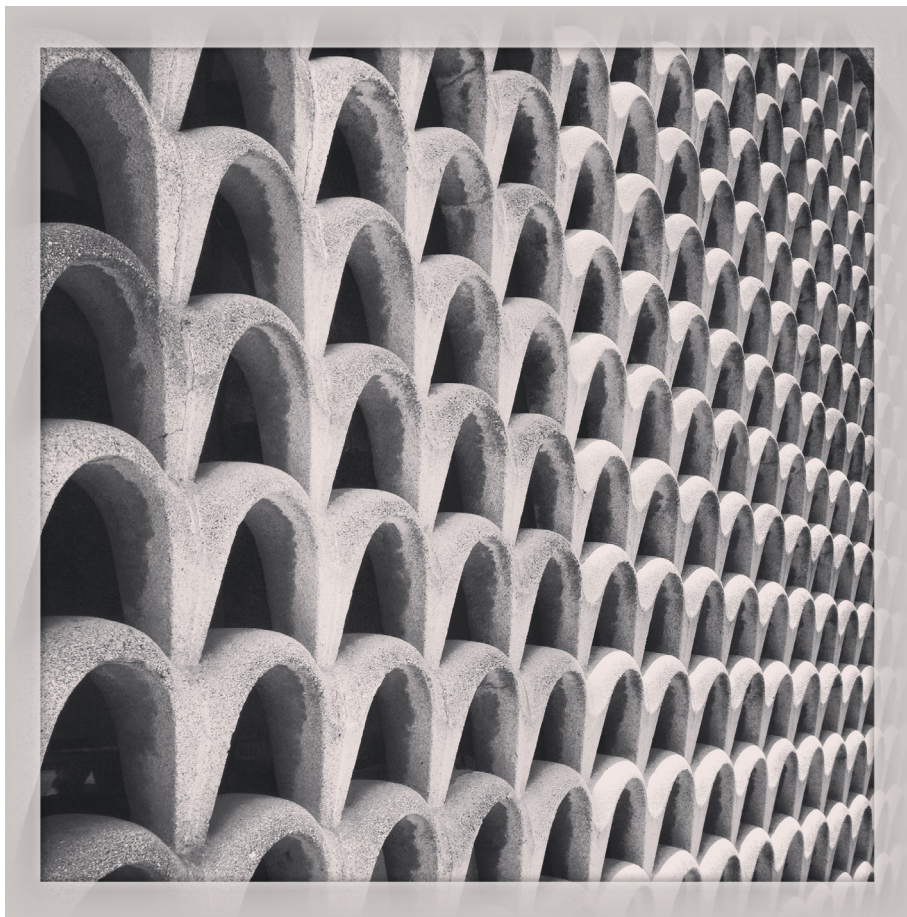
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There is a strong personal and professional connection to lattices in my life. First of all, Guadalajara, the city where I was born in Mexico, went through an interesting movement regarding modern architecture. This movement appears in the city between the years 1934 and 1970, when the government decided to open the first school of architecture in the city.

From this movement, I always felt very attracted to lattices, there are many buildings all over the city that have different types of lattices, for instance, there is one of my favorites that can be found in the

Institute of crafts Jalisco (Image 1), the building was designed by the Architect Erich Coufal, who is well-known for his architecture but also for the design of a variation of lattices that can be seen in different buildings among the city.

Nevertheless, Guadalajara was not the only city in Mexico that had an influence of Modern Architecture, in Mexico City there can be found many of them, a very interesting one for example, is placed in the Museum of anthropology (image 2). The building was designed by the architect Pedro Ramirez Vazquez in 1964.



1. Picture by Sara Pereyra / House of Crafts of Jalisco / Architect Erich Coufal

However, it was when I was traveling in Sao Paulo, Brazil, already in 2013, when the inspiration for screening with ceramic started; I somehow wanted to know more about it. Specifically, Brazilian modern architecture screening. The most famous element they use is a ceramic block called cobogo.

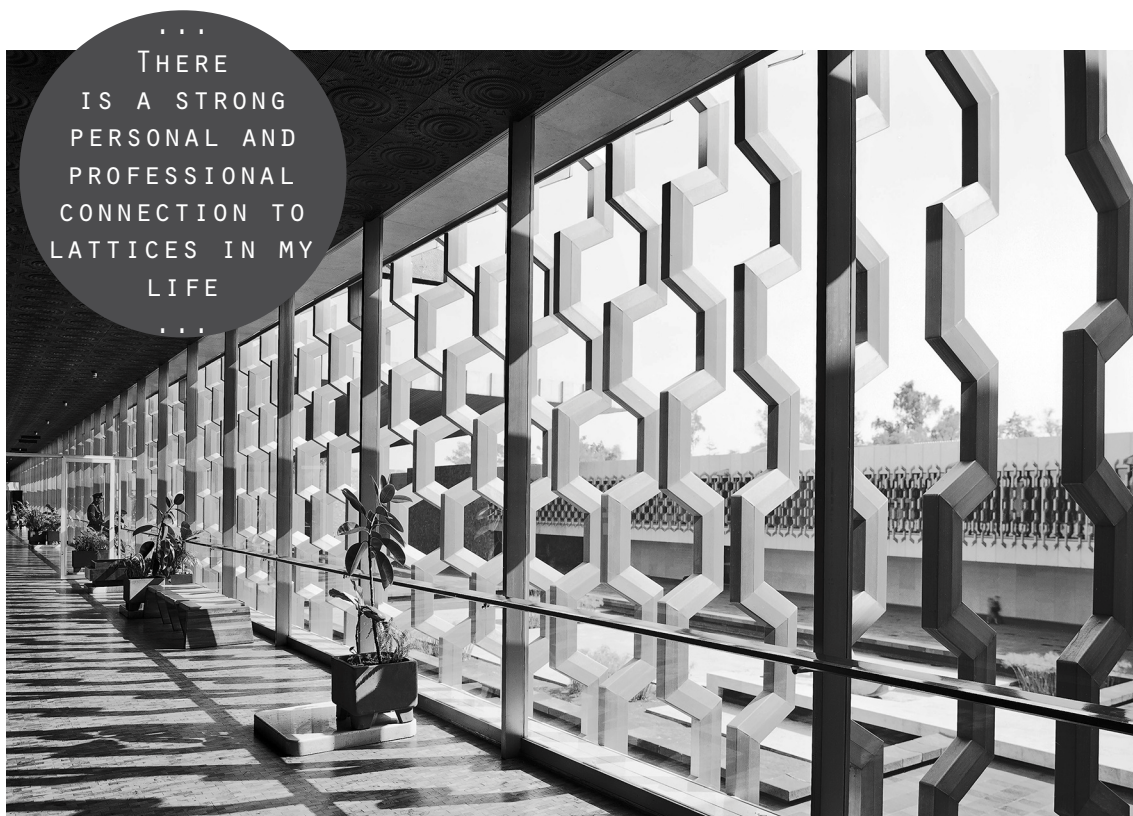
Starting from there the fascination for screens started growing and lead me to make a thesis inspired on them. Therefore, this thesis starts with a research on lattices and the ways they have been used regarding history and cultures.

Screens in architecture are remarkably beautiful but at the same time there is a touch of mystery on them. They divide, separate and hide but not completely.

They are hiding but at the same time they show. This can be related to life as a metaphor.

Taking lattices as an inspiration, the research lead me to the question: how are lattices used in interior spaces? Lattices have been used to divide spaces but there are many other ways to divide spaces, the thesis develops an analysis on how spaces are DIVIDED and why we need to divide them, what has been done and what is still missing and from this the title of the thesis came but also the main design proposal for this thesis. Here are the meanings of DIVIDE that fit well to the thesis:

- A division; split
- To form a border or barrier between
- To keep apart or be a boundary between



2. Picture - Antropology Museum / Mexico City

- To group according to kind; classify or assign
- To become separated into parts
- To share or be shared out in parts; distribute
- To deal out in parts; distribute in shares; apportion.
- To be a divisor of, without a remainder.
- To become divided or separated
- A spatial location defined by a real or imaginary unidimensional extent.
- A division.¹

The thesis wants to approach the interior space, therefore the concept "open layout" described as a clean open space where inhabitants can decide how to use according to their needs is explored. One important question as a designer was how to achieve this. A design that can be implemented temporary in an "Empty Square" and it can be removed at any time. When a space is divided, every room gets a name and spaces become rigid, especially when we use actual material to divide it, such as concrete bricks or panels. In contrast, the aim of the thesis is to re-think the way we have always divided our spaces and start making them more flexible. For instance, instead of using real bricks that would stay in the space permanently, designers should make something that users can build up or remove completely. As an inspiration for this the concept developed by the architect Kiyonori Kikutake is analyzed, the architect, designed the sky-house, and he calls the space a "Move-net". It means that there is one volume that can be changed according to the family needs. Another idea that inspired the modular approach of

this paper was Ken Isaacs's theory related to "Living structure" where he wanted to create space that has interaction with people. The book is also based on the concept of "Do it yourself" and the way it is made makes you feel as if the architect was actually sitting in front of you giving the instructions to do it.

One of the main concerns of this thesis is to give people the feeling of identify with the product, it is thought as collaboration between the designer and the user. Humans make spaces. If we did not existed, we would not create spaces for different functions, such as inhabiting, working eating. However, we are completely unique and independent, why we would like to have exactly the same as others? If we can choose the way we dress, act, talk and eat, why we wouldn't choose the way we want to divide our spaces?

Although these walls do not exist precisely, perhaps it is possible to find a few examples to display an overall idea of screens that have been utilized in the past. Briefly I would like to describe only two of them regarding history: The Cobogo was a ceramic block that was used in Brazil in the 20's; they were and still are used in facades and in indoor environments as dividing walls. As second example would point the Islamic screens, found in wood or ceramics and used mainly to provide privacy, especially to separate women's quarters, as a cultural situation, but also they would maintain cooling through drafts in the hot climate.



...“IT WAS WHEN I WAS TRAVELING IN SAO PAULO, BRAZIL, ALREADY IN 2013, WHEN THE INSPIRATION FOR SCREENING WITH CERAMIC STARED...”

Picture by Sara Pereyra / Cobogo / Sao Paulo, Brazil

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Lattices by Architect Erich Coufal / Exhibition at the Museum of the city of Guadalajara

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Antropology Museum / Mexico City

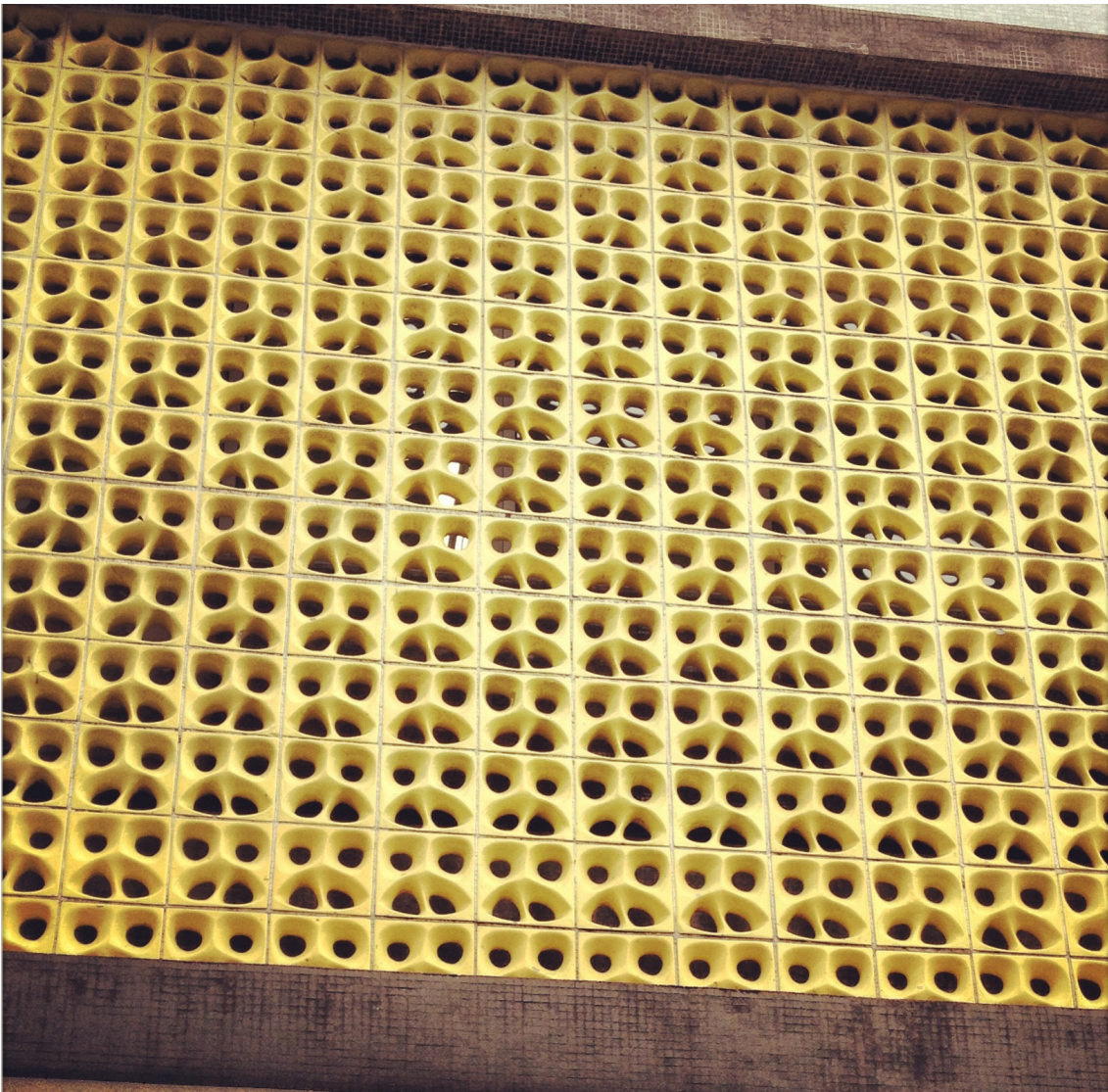
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2 OBJECTIVE.

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Picture by Sara Pereyra / Cobogo / Sao Paulo, Brazil

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This thesis has three different objectives;

1- *Create a flexible wall that provides users with a function other than divide the space, has an interaction with them and most important, let them feel identified with the product.*

2- *Create an open screen wall for a façade that provides the inhabitants privacy, shelter from the wind and allows them to see through, but adding a function, in this specific case an open screen that can be used to grow vegetables and herbs as well as promotes social interaction.*

3- *Improve people's lives and well-being, by providing something esthetic that feeds their souls but has a real function, force them to interact through little rituals but promotes the "grow your own culture"*

The thesis is also trying to answer the following questions:

1. How can we make walls flexible & adjustable to any space?

The thesis is searching to create a wall that can be adjusted to any type of space and also is aiming to add spaces flexibility by playing with a modular design easy to move at anytime.

2. Can we provide the users with a wall that helps to divide a space but also offers a function?

An important function is added to a space divider as a result of the thesis, a system that allows the users to grow their own herbs.

3. What type of function should it be?

To grow herbs is something really complicated nowadays in big cities, nevertheless the demand from users is increasing more and more, this thesis wants to provide a system for this that doesn't take too much space so it can be implemented everywhere.

4. What would be a function added that would actually improve people lives?

Herbs and plants improve peoples live in many ways; is healthy, is aesthetically beauty and saves money.

5. What can be implemented to open screen walls in architecture?

A system to grow herbs is also implemented in a lattice but works in a completely different way from the interior design proposal. This is not only giving the inhabitants of buildings a good way to grow herbs but is also promoting social interactions among them.

As it was mentioned before, screens are remarkable beautiful and mysterious but they lack a function, this paper has the objective to add a function to it. The second thing missing was, when using in interiors, they were really rigid and boring, and I wanted to make something changeable and fun, but avoid furniture. On the other hand the “grow your own culture” is increasing in a rapid way. Designers have to consider this, and the main concern are the people living in big cities, where it would be hard to have a garden or a big space to grow herbs.

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3 BACKGROUND / HISTORY.

3.1 LATTICES AND FAÇADES

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Picture - Oceanário Lisbon, Portugal - Felix Arturo Zatarain Architecture

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Different variations of lattices have been developed over the time, mainly for architecture purposes; therefore, this thesis contains a brief research in latticing, an overall idea of the meaning of lattices and the description of different types of them and how they have been used.

3.1.1 DEFINITION

LATTICING

*What does the word Latticing mean?
n.*

1. a. An open framework made of strips of metal, wood, or similar material overlapped or overlaid in a regular, usually crisscross pattern.

b. A structure, such as a window, screen, or trellis, made of or containing such a framework.

2. Something, such as a decorative motif or heraldic bearing that resembles an open, patterned framework.

3. Physics a. A regular, periodic configuration of points, particles, or objects throughout an area or a space, especially the arrangement of ions or molecules in a crystalline solid.

b. The spatial arrangement of fissionable and non-fissionable materials in a nuclear reactor.

tr.v. lat-ticed, lat-tic-ing, lat-tic-es

To construct or furnish with a lattice or latticework. ²

3.1.2 LATTICING-ISLAM

Regarding history, screening or latticing has always been highly used in the Islamic culture.

Yet the manner they have used it has a strongly connection with culture and religious.

It has always been thought, that the Middle East is where the civilization started, from Greece and Egypt in the west, through the fertile crescent of Mesopotamia and Levant to the Indus Valley and on to China in the East.

The scientists and philosophers of the Islamic, like the Classical world, were deeply involved with the study of math, geometry and science. Indeed it is the Arabic world that developed the numbering system we all use today.

Throughout their history, Islamic Artists have developed simple geometry into a complex layering of patterns with subtle use of colors, tones and positive-negative space to create sophisticated optical effects.

This Art form shows a preoccupation with repetition, rotation, symmetry, and infinite extendable patterns. These patterns are often framed but repeated at different scales throughout buildings, visually consolidating the whole. This approach shows perhaps an appreciation of the fractal organization of the natural world. These patterns were used to completely cover many surfaces either in brightly coloured ceramic tiles or in relief patterns formed from brick or carved in stucco.

Both approaches come to life in the strong sunlight of the region.

Traditionally made of small pieces of turned wood, assembled into these intricate geometric patterns, pierced screens are also a characteristic element of Islamic Architecture. They developed from a need to provide privacy (particularly for the separate women's quarters) yet still maintain cooling through drafts in the hot climate. Sometimes they also include niches to contain aromatic plants and earthenware vessels of water that are cooled through the process of evaporation. Internally they cast amazing patterns of light and shadows.

The circle is the generative shape of most Geometric Islamic Patterns, being subdivided into triangles, squares, polygons (pentagons, hexagons and octagons) and star-like shapes (6 to 16 pointed). Calligraphy and Foliate patterns are also used extensively and to a lesser extent Figures and Animals. In some ways you can see parallels between Islamic Art and traditional Celtic Art which also has complex geometry underlying its construction but is based on interlacing linear forms either as flowing knot work, spiral and zoomorphic patterns, or angular key patterns.

Islamic architecture shows expert use of 3-dimensionally geometry and structural principles, particularly in domed structures. The structural transitions from square plan to circular dome were sensitively and beautifully solved. One method was to use corner squinches to transform the square to an octagon and then a cir-

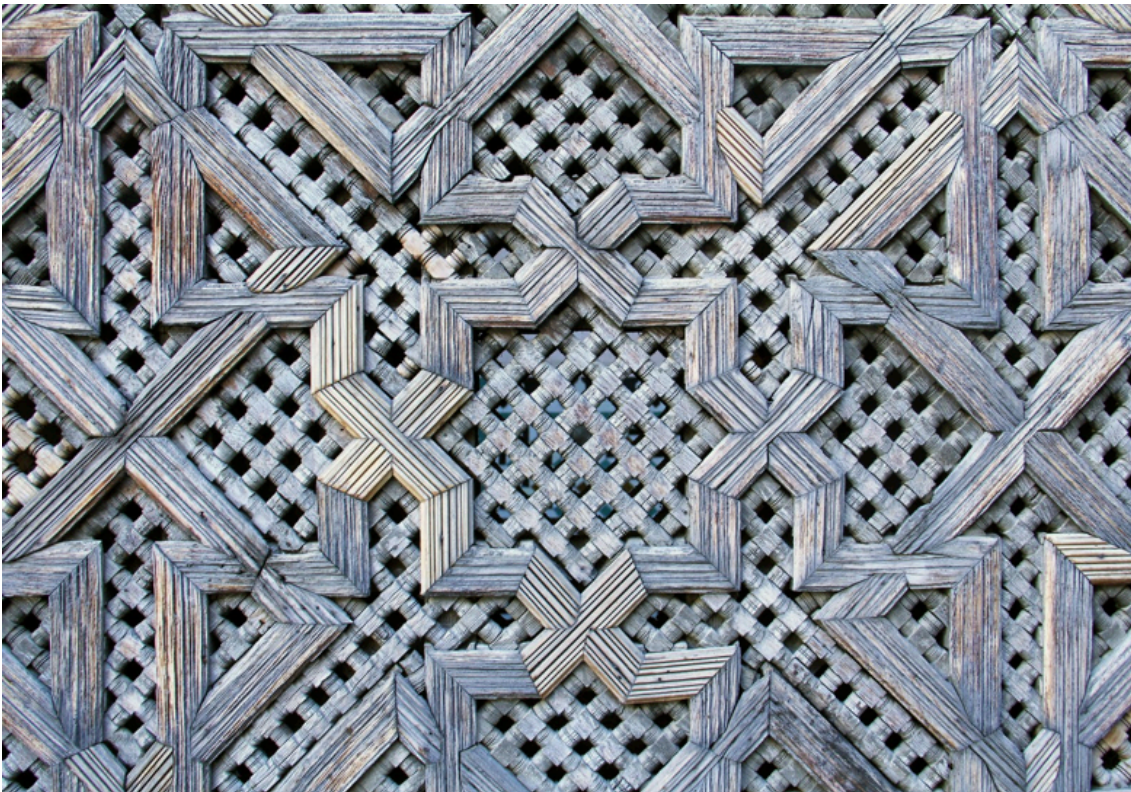
cle. Another method used tiers of arches to bridge the corners, giving a complex articulated internal surface.

This later developed into the stalactite or muqarnas domes. Another element is the piercing of domes to create spectacular lighting effects from above, which were sometimes enhanced by covering the faceted surfaces with glazed tiles or mirrors to reflect the light.

As a conclusion for Cobogos and Islamic screens, there are many similarities in the

functions, although the cobogo is freely used by architects as a decoration, the Islamic has more restrictions related to their beliefs.³

...
(PARTICULARLY
TO
SEPARATE WOMEN'S
QUARTERS)...



Mashrabiya Screen

3.1.3 LATTICING-COBOGOS

The cobogo, is a block, highly similar to a brick but is made out of ceramic and this is what makes it so unique and original. It is always used in panels, which create lattices for buildings.

The cobogos started to be in used in the 1920s, in Brazil, and were highly used by the engineers Amadeu Oliveira, Ernest August Boeckmann and Antonio de Gois, these three engineers patented them by taking the initials of their surnames. One of the main functions of this type of blocks, when used in architecture, is to give some privacy to the users but without taking the brightness and visibility from the interior of the building.

*Nowadays the cobogos are still used in facades and also as space dividers. Their main characteristics are that the spaces can be protected from sun but allowing natural light and providing natural ventilation. It is considered one of the best options for the warm countries, besides, they normally create interesting patterns, in shape, colors and with the shadows they create, adding to the space a playful environment.*⁴



...IT IS CONSIDERED ONE OF THE COUNTRIES...

DIVIDED BY YOU



BEST OPTIONS FOR THE WARM

CASA COBOGO BY MARCIO KORGAN + STUDIO MK27 PICTURE: © Nelson Kon // archtendencias.com

3.1.4 LATTICING-CINDER BLOCK-MODERN ARCHITECTURE

Cinder block is one brick that has been used the most during the modern architecture, especially in America, is called cinder block or breeze blocks, and they were used to create screens, same as the previously described.

Architects like Edward Durell Stone would have this type of bricks or blocks in most of his buildings.

Edward Durell Stone, found this blocks as “a solution to the greater problem of city life”, normally big cities, are related to a lack of privacy, so the remedy Stone was proposing for this was a concrete screen, as he was inspired on an exhibition at des Arts Decoratif Industriels et Modernes in Paris, France in 1925, he started from that, developing the idea of details in architecture needed an specific function, and he decided to create a concrete screen, which was implemented in the United States Embassy at New Delhi, similar to the one he would use for his house on the Upper East Side two years later.⁵

The screen that was place in the Embassy works as a protection from the strung sun in India but it still allows the circulation of the air, which was perfect design solution for the climate conditions in New Delhi.

While the screen used at Stone’s house the screen give privacy to its inhabitants but it also allows them to see the exterior. The concept develop by Edward Durell Sotne was rectify the problems related to

climate in the city life.

Retaking the history of the breeze blocks, they appeared around 1930, but they became really popular in 1950 and 1960.⁶

Same as the cobogos, they were used in warm weathers, to provide some fresh air to the interior spaces.

The breeze block were typically made from ashes of coal, bonded together by Portland cement and the cinder block are made from cast concrete, Portland cement and aggregate, usually sand and fine gravel for high density blocks. Lower density blocks may use industrial wastes as an aggregate and lightweight blocks, can also be produced using aerated concrete.⁷

Concluding the three different latticing systems, we can say that, independently of the culture, time or history, this systems have been the best way of providing spaces certain privacy but allowing people to enjoy the view and give to the inhabitants a better and satisfactory weather.

...
THE
CONCEPT DEVELOP
BY
EDWARD DURELL SOTNE
WAS RECTIFY THE PROBLEMS
RELATED TO CLIMATE
IN THE CITY
LIFE...



Mid Century Modern Decorative Screenblock Wall 1950s

SARA PEREYRA

3.1.5 BRICKS

It is very common in architecture to find open screen walls. There are many possibilities of variations of patterns we can create by using bricks. Same as the rest of the previous blocks described on this paper, they are meant to provide the users shelter and privacy. These type of walls are not solid like normal walls, therefore, they do not offer the same resistance to wind pressure, and they should be combine with solid panels and piers when used in architecture. (Pilasters)⁸

...
THEY SHOULD BE
COMBINE WITH SOLID
PANELS AND PIERS
WHEN USED IN ARCHI-
TECTURE
...



CASA EN PILAR / FILM-OBRA DE ARQUITECTURA

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3.2 SPACE DIVIDER.
(INTERIOR DESIGN APPROACH)

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seven doors by NENDO for Abe Kogyo

SARA PEREYRA

3.2 SPACE DIVIDERS-DEFINITION

A room divider is a screen or piece of furniture placed in a way that divides a room into separate areas. Room dividers are used by interior designers and architects as means to divide space into separate distinct areas.

There are a number of different types of room dividers such as cubicle partitions, pipe and drape screens, shoji screens, and walls. Room dividers can be made from many materials, including wood, fabric, plexiglass, framed cotton canvas, pleated fabric or mirrors. Plants, shelves or railings might also be used as dividers. Portable room dividers have folded wall panels supported on wheels.

TYPES

In general, room dividers are used in one of the following ways:

- To divide rooms, creating a more efficient use of the space within the room.*
- As decorators and/or accent pieces to add character to room space.*
- To hide areas of different usage or pri-*

vacy protection

-To decorate rooms for better home design effect

Room dividers differ in nature being either:

-Permanent as in using wine shelves in restaurants

-Built in as in sliding partitions in offices

-Portable or temporary as for example in convention centers

-Fixed room dividers and hanging room dividers

They may completely obscure as in floor to ceiling dividers, or may allow sight through as for example when plant pots are used to divide areas

Houses, and other residences, use a room divider to divide the space more effectively or as a decorating focus point. There are many uses for a room divider including: dividing the room, adding privacy to any space, hiding clutter and increasing storage and accents to the room.⁹

3.2.1 RONAN & ERWAN BOUROULLEC

Ronan and Erwan Bouroullec, are two French designers that have developed different systems to divide spaces with the assembly philosophy. Although the result is completely different from what this thesis is looking for, it helped as a research and inspiration. In the project "Clouds" (image 1) the Bouroullec Brothers, invite the people to interact with the creation of a wall by adding or removing pieces in a very easy way. They are also interested in simplicity of construction forces and willing to bring people to simple gestures and common sense.¹⁰

Same is happening in the wall "Algues" (Image 2) where the repetition of the same piece is creating a wall that can be

adapted to any space. The designers have another project called "Brick" where they are exploring with the possibility of a brick that is easy to assemble. The principles of these different systems were leading, the assembling was important, the modularity was important, the dividing a space was important and based on this ideas, I still wanted to add an extra function.

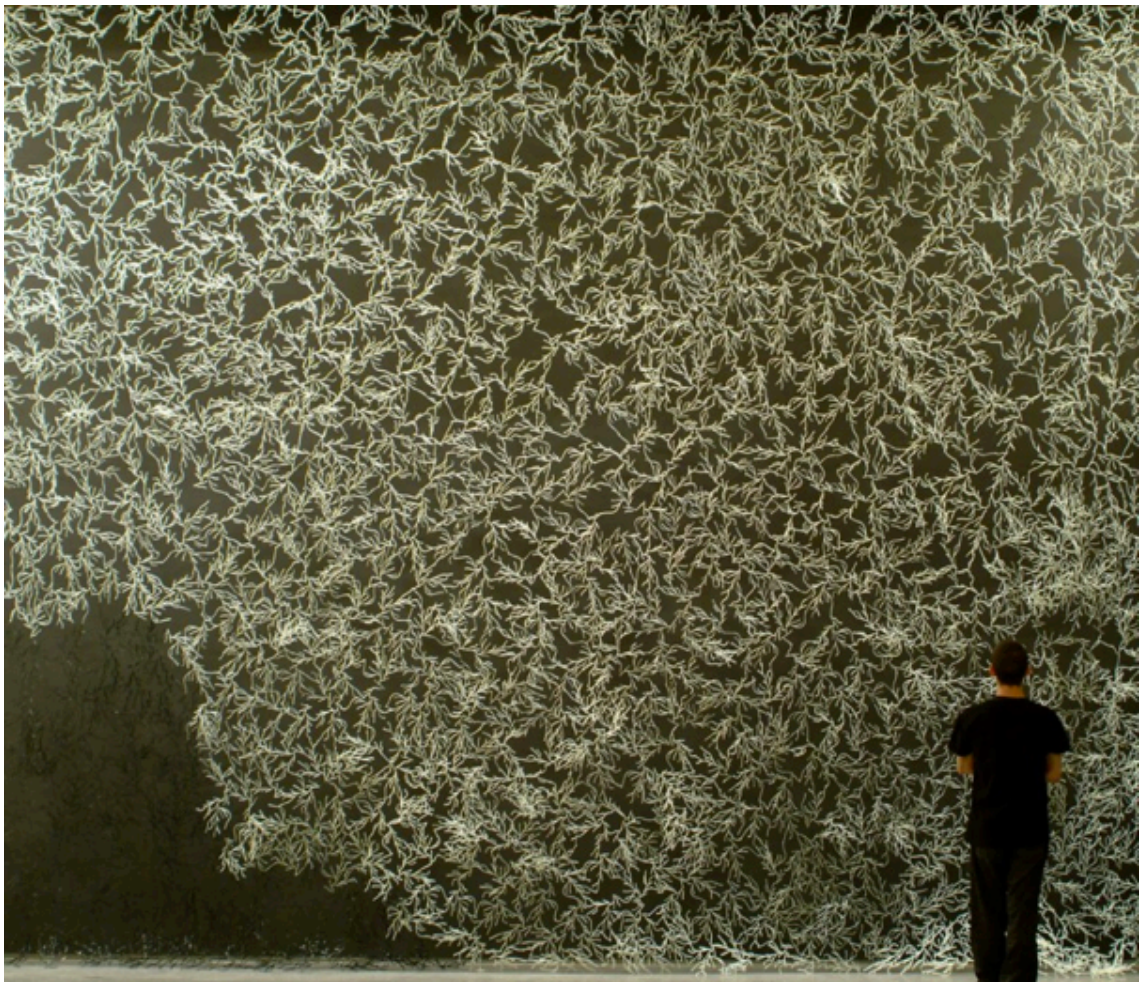
Some images of the described projects can be found in the following pages.

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CLOUDS (image 1)

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ALGUES (Image 2)

In this image we can see how this wall works in a similar way as a curtain but the difference is that is modular, so it can be adjusted to meet the user necessities according to space.



SPRING CLOUDS

This space divider works more like a furniture and in this case the user has very little interaction.

3.2.2 CHARLOTTE PERRIAND

Charlotte Perriand has been one of the icons in design history. This thesis is analyzing her explorations with space dividers and furniture. One of the most important influence for this paper, was not only the beautiful shelves she made that provide the users with the function of a space divider, but also, this thesis is studying one of the key words of modern design was MODULARITY, elements that are never rigid and the combination of functionality with aesthetics, ideally as a result all these elements will be combined. The “Charlotte” shelves consist of sheets of glass and fiberglass plates, users start by putting the first plate on the

ground and then add the glass sheets and then the next plate and so on. They don’t require any specific skill from the users and the steps are really obvious.

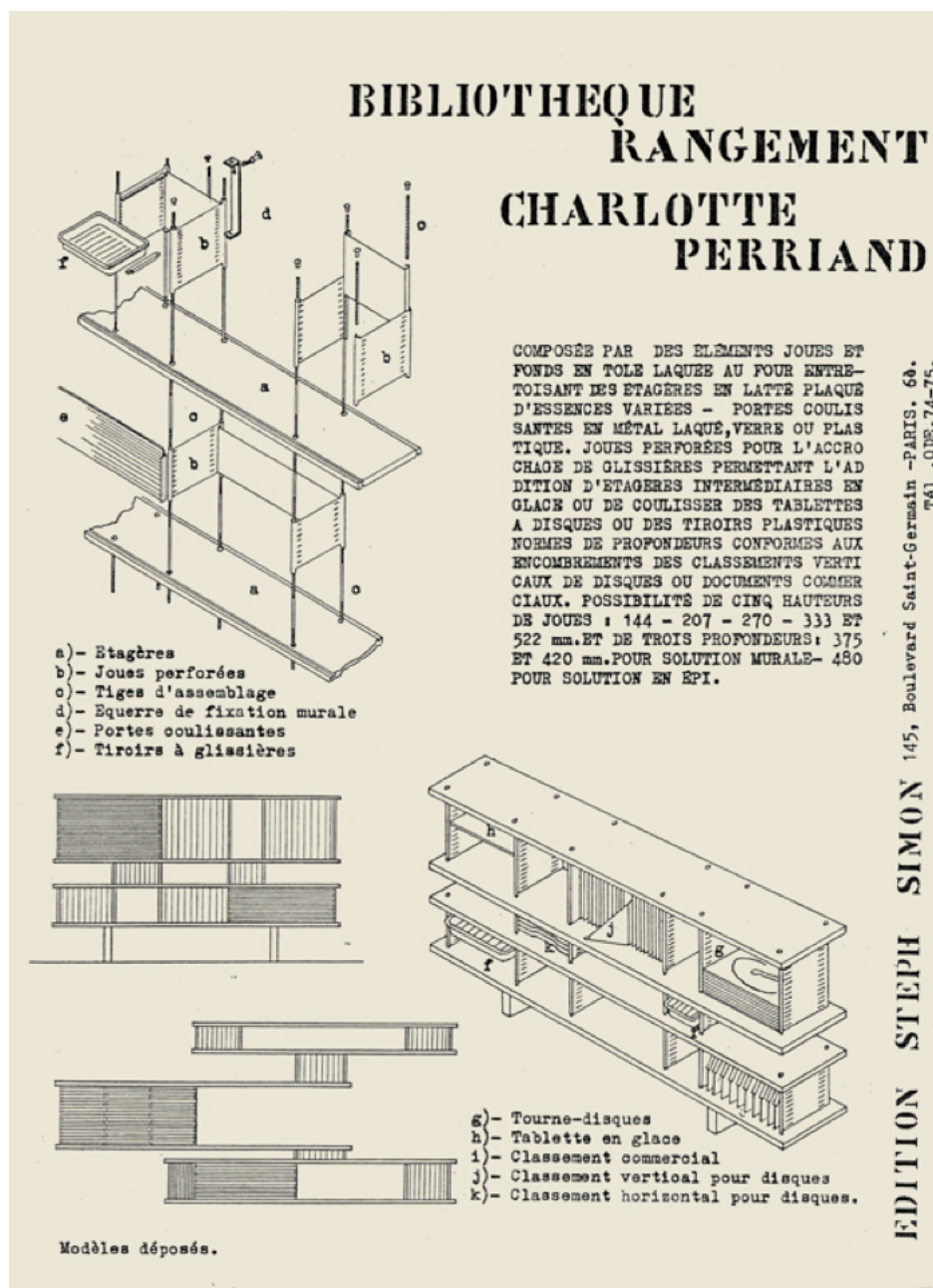
Doesn’t require organization and it can be done by any person. This is what this thesis is trying to achieve, assemble modules that would require any skill but that provide an extra function. ^{11, 12}

Here are some of the images of the pieces described before:

...MODULARITY,
ELEMENTS THAT ARE
NEVER RIGID AND THE
COMBINATION OF
FUNCTIONALITY
WITH AESTHETICS...



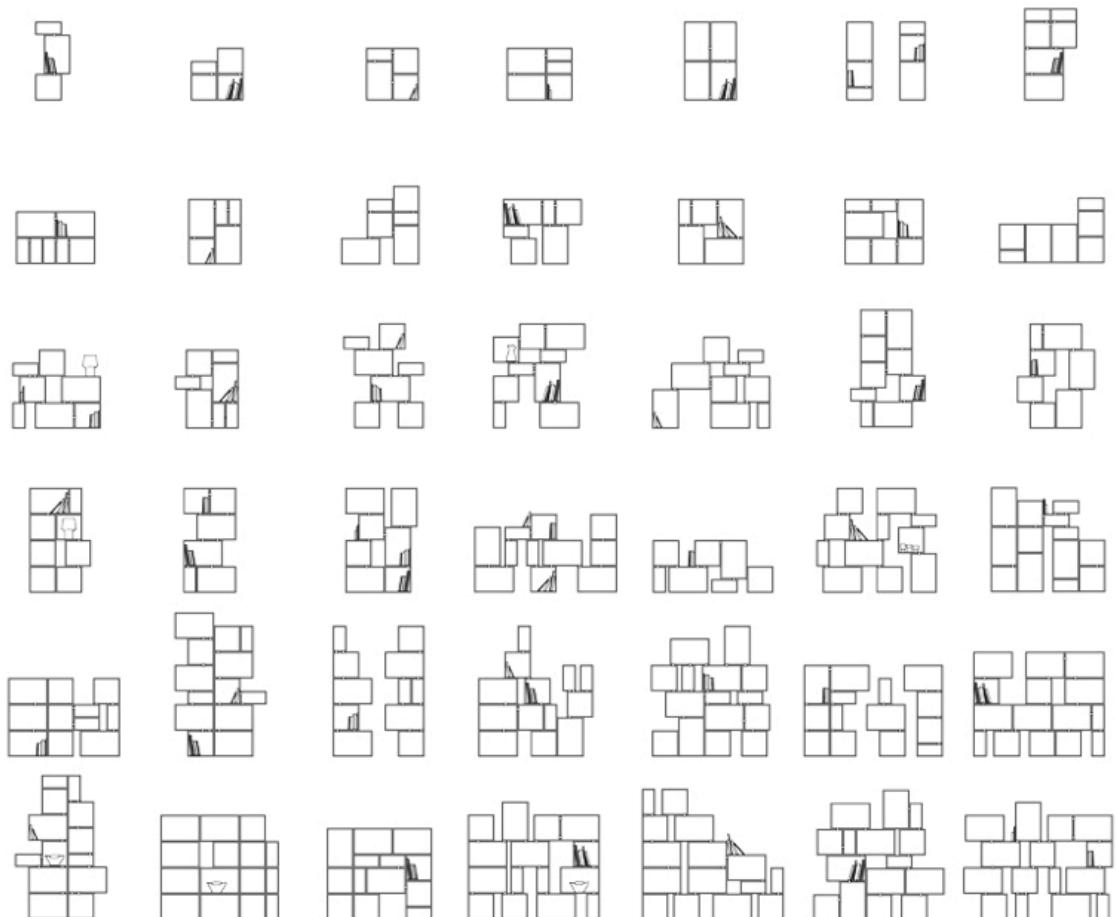
CHARLOTTE PERRIAND'S 'NUAGE', EDITION GALÉRIE STEPH SIMON,
1956; PHOTO © ARCHIVES CHARLOTTE PERRIAND, ADAGP 2012



3.2.3. CONTEMPORARY FURNITURE USING SIMILAR PRINCIPLES

The last part on the furniture space dividers for this thesis, two contemporary furniture with the similar ideology are briefly analyzed. The first is the “STACKED” system developed by the Finnish design company called MUUTO.

The shelving system is based in units or modules with different measures that can be assemble together, to create a storage shelf following the measures of the space and the need of the users.¹³



Second modular shelving system is analyzed in this thesis is designed by the company THINKK. The system provides multiple functions and same as the previous systems describe on this thesis, the shelves are modular and stackable. This project is considered on the thesis because is providing the users with extra functions, is not only meant to be shelve

and work as a space divider. The shelves also has a lot of interaction with the users and allows them to decide many things, so for the result of this thesis the idea of the identifying the users with the product was important and I think that this system achieves this perfectly.¹⁴



SARA PEREYRA

DIVIDED BY YOU

3.1 FLEXIBILITY IN SPACE

(INTERIOR DESIGN APPROACH)

3.3.1 HOW CAN WALLS BE MORE FUNCTIONAL AND MAKE SPACES MORE FLEXIBLE?

Some of the research questions for my thesis were; are walls flexible? How can we make them flexible? What does flexibility in space mean? Why do we need flexible walls and spaces? Can one space be always changeable?

Even though clients nowadays are asking for flexibility in space and one of the main reasons is economics. Designers keep proposing “Flexibility” in a really boring and blocky way that is in result inflexible¹⁵.

I have always liked the idea of an “open layout” that I like to describe as a clean, open space, where the inhabitants can decide how to use it, according to their needs, how can we achieve this? Every time I think what would be the best way to design a space, an “Empty Square” comes to my mind. When a space is divided, every room starts getting a name and spaces start getting rigid, especially when we use an actual material to divide it, such as concrete, bricks or panels. The aim of this thesis is to re think the way we have always divide our spaces and start making them more flexible. Instead of using real bricks, which would stay in the space permanent, make something that users can build up or remove completely. The architect Kiyonori Kikutake, build the sky-house which based in small scale spaces, addresses the concept of changeability and have created the “Move-net”, this is how he calls it. It means that there is one volume and this volume can be

changed according to the family needs. As first space added to the main volume is the room for the children, and this space can be removed when the children move away¹⁶

I used this concept to design “the wall” described in this paper, it is based in the same concepts of changeability and adaptability according the user needs. The thesis is proposing one module that can be added or removed at any time

SOU FUJIMOTO, AKIHISA HIRATA, JUNYA ISHIGAMI are three architects that have been characterized for having an “open plan”, rooms with high ceilings and spaces that normally don’t have a specific defined function, these characteristics allow the users to define the spaces once they start living in them.¹⁷

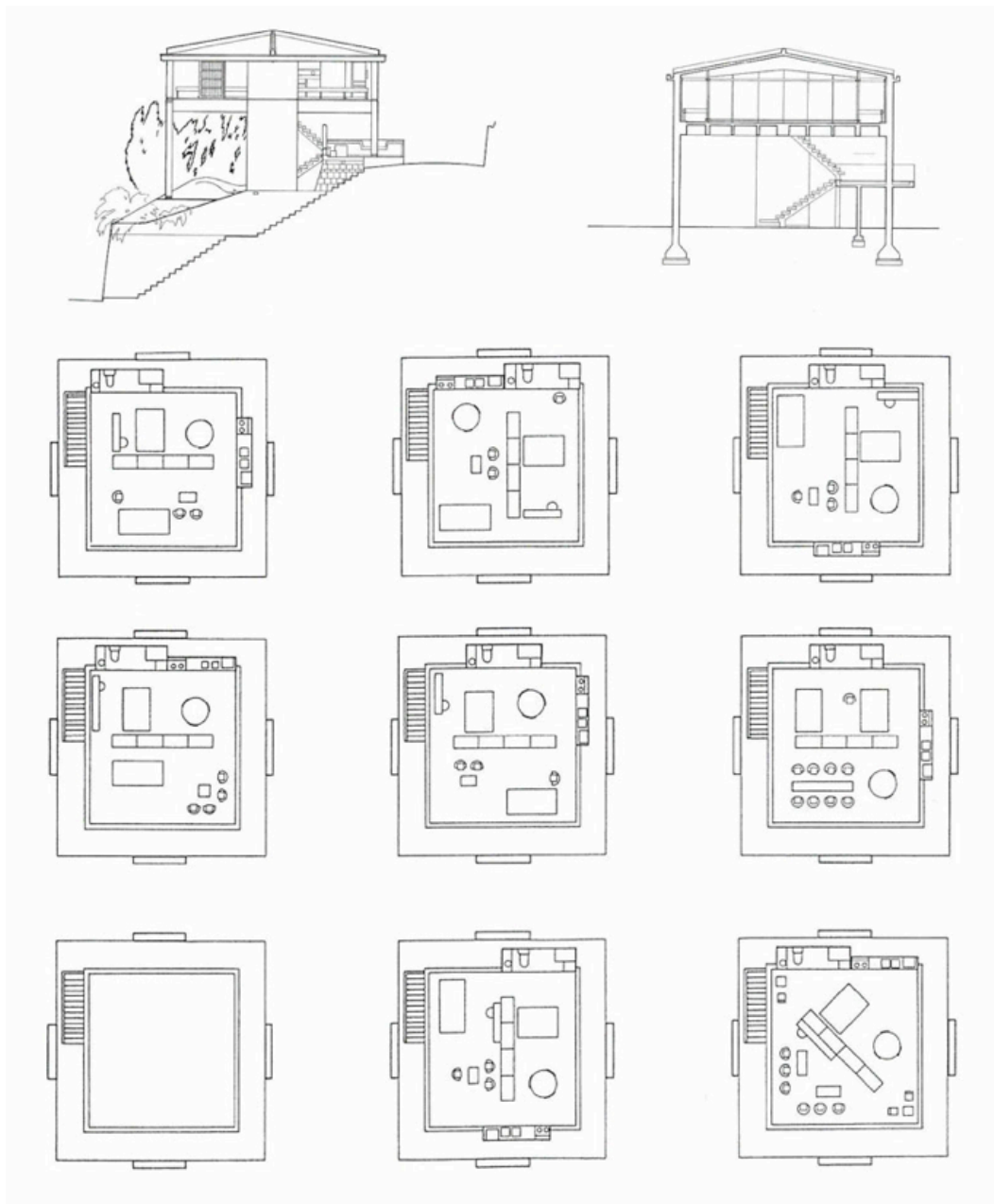
“Fujimoto’s goal isn’t just to make spaces—the basic function of architecture—but to make people relate to spaces in new ways,” stated WSJ author Fred Bernstein.¹⁸

...
“FUJIMOTO’S GOAL
ISN’T JUST TO MAKE
SPACES—

THE BASIC FUNCTION OF AR-
CHITECTURE

—BUT TO MAKE PEOPLE RE-
LATE TO SPACES IN NEW
WAYS,”
...

THE IMAGE BELOW SHOWS: THE METABOLIST SKY HOUSE.
BY KIYONORI KIKUTAKE (1958)
WE CAN OBSERVE HOW THE LAYOUT IS ALWAYS CHANGING.



SARA PEREYRA

THE METABOLIST SKY HOUSE.
BY KIYONORI KIKUTAKE (1958)



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HOUSE NA.
BY SOU FUJIMOTO.



3.3.2 DO IT YOURSELF & PRODUCT INTERACTION

Another idea that helped for inspiration for the thesis was, Ken Isaacs theory related to "A living Structure" in which he wanted to create a space that has interaction with people, as he was fascinated with spatial interactions. These spaces were highly interactive, even though they were really small. Ken Isaacs's book, has the instructions that can be followed step-by-step in order to create different versions of his designs. The book is also based on the idea of Do it yourself and he makes it feel as if he was the one sitting in front of you giving you the instructions to do it. Back to Ken Isaacs book, which is based on stack tetrahedrons, which can be used, moved, replaced, etc. to divide spaces and create structures in a creative way.¹⁹

that designers should consider interactivity. There should exist a dialog between users and the product.²¹

It was very important for the developing of the prototype to consider the interaction with people, invite them to be part of the creation of their own wall, and promote interaction with the users in a friendly way. So, what I'm proposing in this thesis is to invite the people to interact by building the wall and decide the style for it, but also use it to grow their herbs and provide the space with some brightness.

... "IT WAS TIME FOR OPTIMIST",
HE RECALLS,
"PEOPLE WERE READY FOR & INTERESTED IN WAYS OF LIFE"...

This thesis aims to work in a similar way, but in a small scale, the goal was to create a manual people can use to create their walls with specific functions, following their needs.

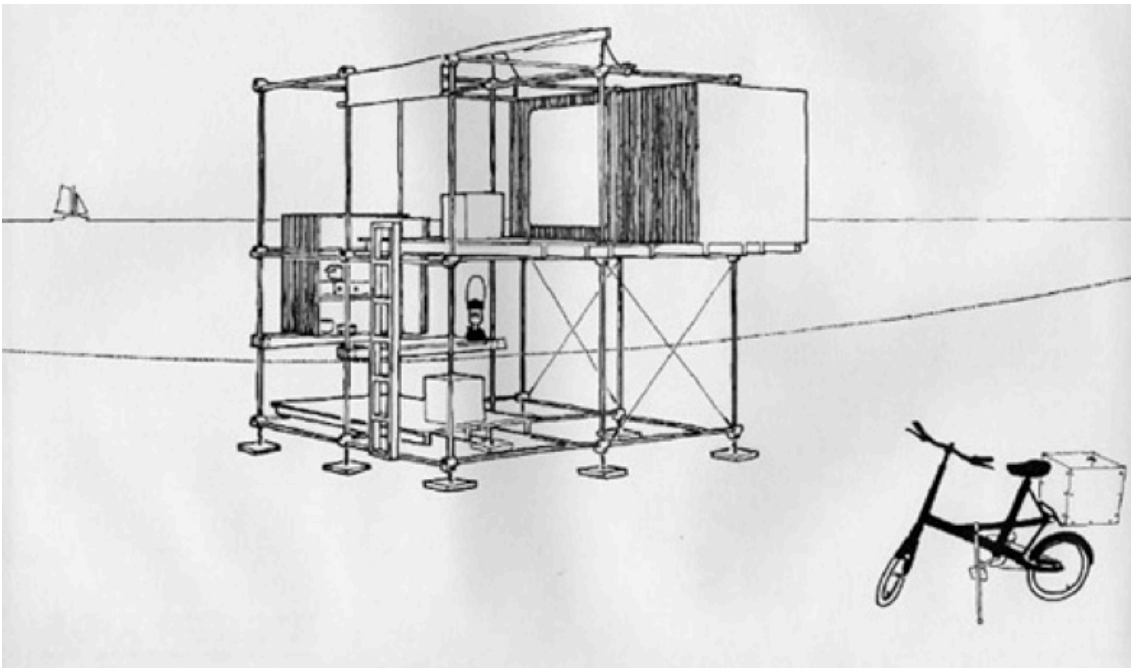
Beneath the gee-whiz artfulness was Isaac's desire to help create a better way of life.

"It was time for optimist", He recalls, "People were ready for and interested in ways of life"²⁰

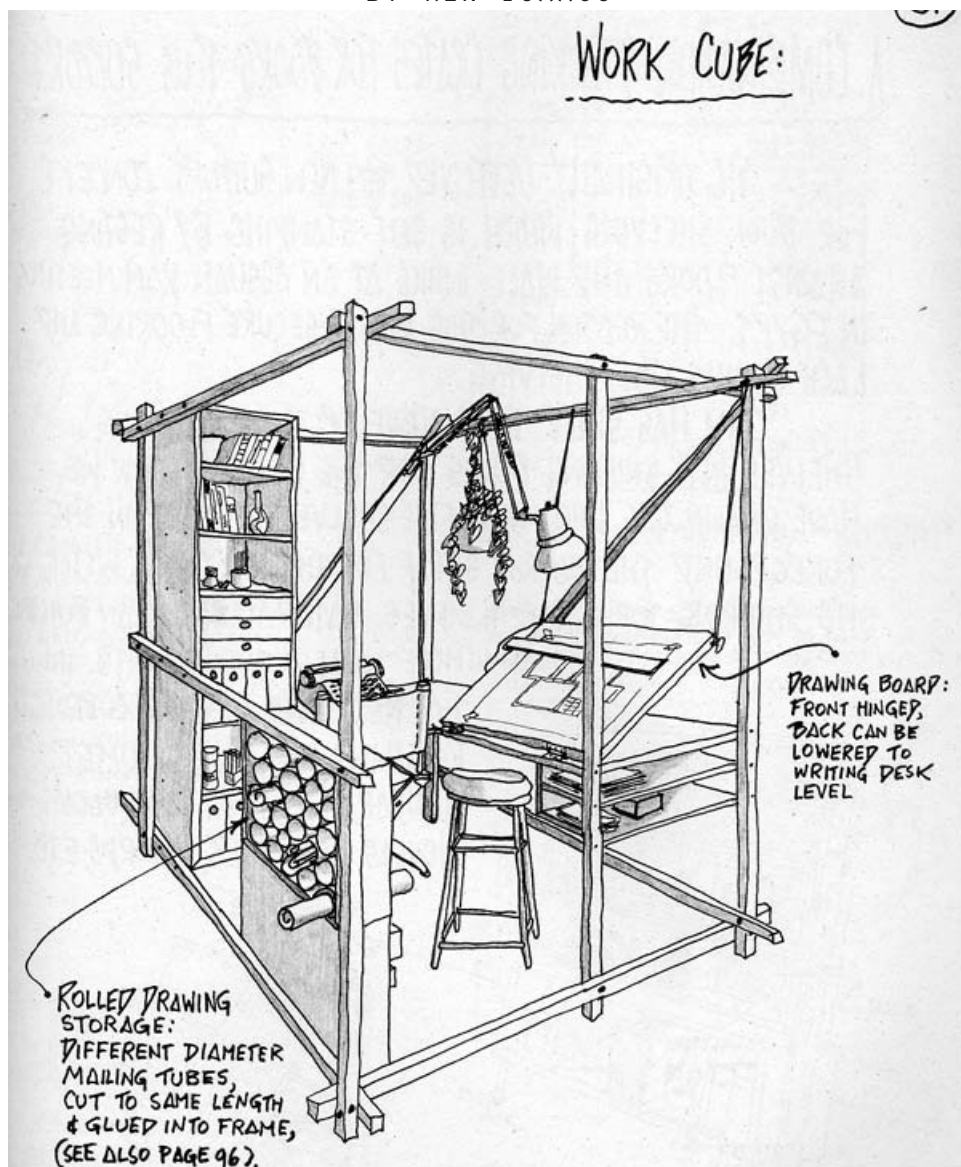
At the same time, nowadays the demand for products that have interaction with people is growing. That means

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HOW TO BUILD YOUR OWN STRUCTURE.
BY KEN ISAACS



HOW TO BUILD YOUR OWN STRUCTURE.
BY KEN ISAACS



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4 WELL-BEING.

(INTERIOR & EXTERIOR DESIGN APPROACH)

SARA PEREYRA

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4.1 WELL BEING

How can people feel better? Why is people's well-being important? Can we actually improve the spaces or design to make people feel better, happier, and more peaceful? If so, how can we achieve this? One of the main goals for the thesis, besides the concepts described in the earlier pages, is to create feelings and emotions in a positive way and this is the most challenging part of the thesis.

People should always be guided to feel good, happy, fulfilled and peaceful, there are companies like apple, that are always offering emotionally appealing products and if they didn't offer this to the users, they would be out of the business. Artists can express emotions in their pieces and must cause a reaction in people's feelings but in reality, designers are the ones that can actually infuse emotional content into products and services.²²

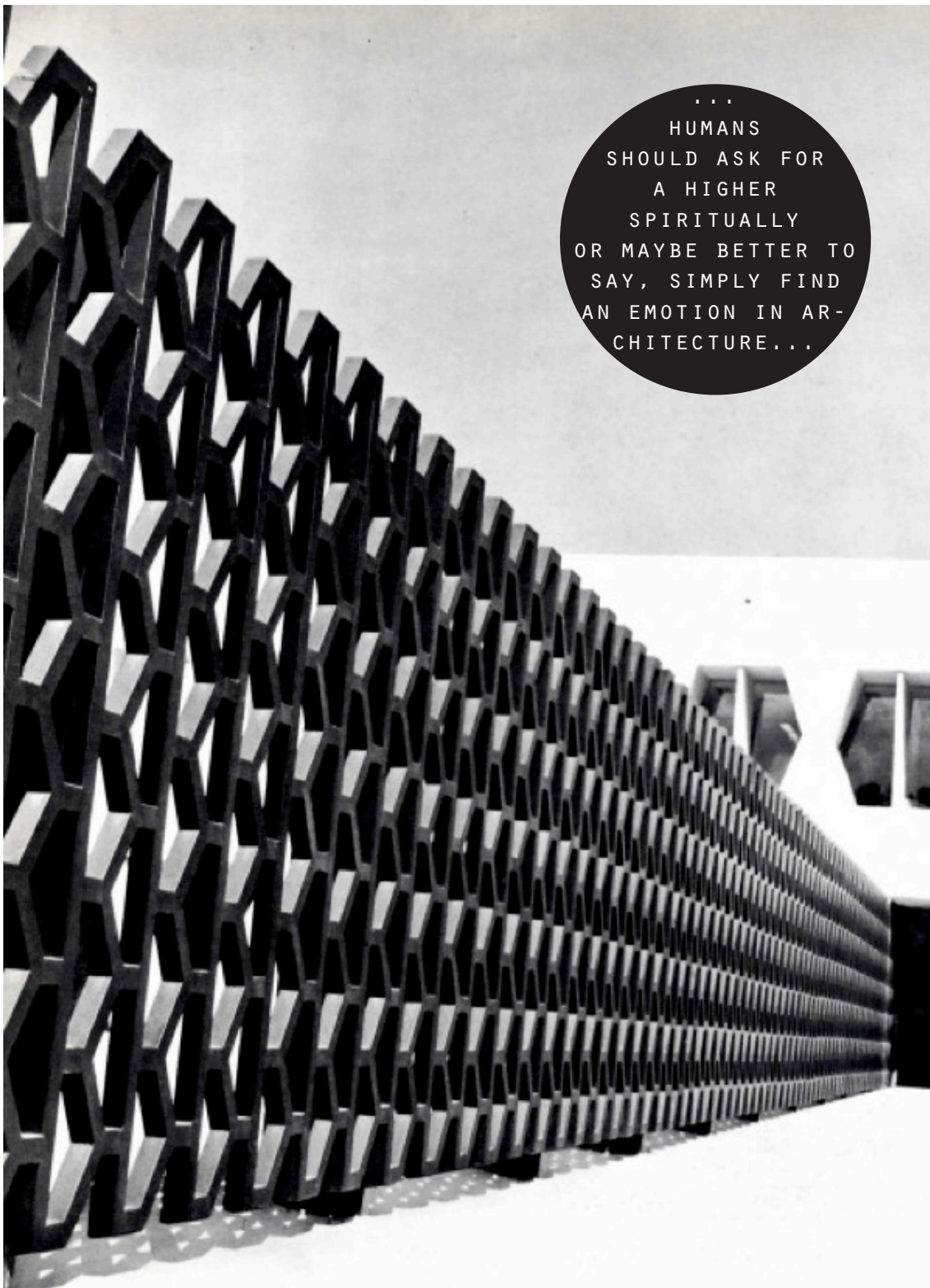
To create emotions is one of the goals of this thesis, or at least find a way to make people feel better, on the other hand and most challenging, create a spiritual connection. What does spiritual connection mean? There are some architects

and designers that have been worried about the spiritual connection between humans and architecture, spaces or objects. I want to talk about Mathias Goeritz.

Goeritz, created the Emotional Architecture Manifesto in 1953, this manifesto was looking for a "way out", a way out from the humanity at the time problem, same problem we still have at this time and is related to spirituality, it says that human being is looking or should ask something in architecture, humans should ask for a higher spirituality or maybe better to say, simply find an emotion in architecture.²³

That was Goeritz goal in architecture, to cause in modern man a maximum emotion. How can we achieve this in design, I strongly believe that designers should consider this facts. And this thesis is trying to achieve this connection.

On the other hand Mathias Goeritz also developed different variations of lattices, so it has been a strong inspiration for this thesis, not only in the searching for human spirituality connection through design but in his developed of screen systems for architecture. We can appreciate one of this walls he created in the image on next page.



...
HUMANS
SHOULD ASK FOR
A HIGHER
SPIRITUALLY
OR MAYBE BETTER TO
SAY, SIMPLY FIND
AN EMOTION IN AR-
CHITECTURE...

IMAGE: SCREEN BY MATHIAS GOERITZ, SMITH, KLINE & FRENCH LABORATORIES, MEXICO CITY, 1964

4.1.1 ARCHITECTS WHO HAVE CONSIDERED THE WELL-BEING IN THEIR DESIGN

LUIS BARRAGAN

Another architect I would like to refer to in the search for Spiritual connection to Human and architecture is Luis Barragan, and it has to be said that Goeritz and Barragan were good friends and colleagues. In my opinion we can answer all the answers related to Barragan's architecture in the acceptance speech for the Pritzker prize, where he is talking about his architecture and how he is connecting it to the spiritual way of living. Among other things Barragan is explaining his architecture as a sublime act of poetic imagination.

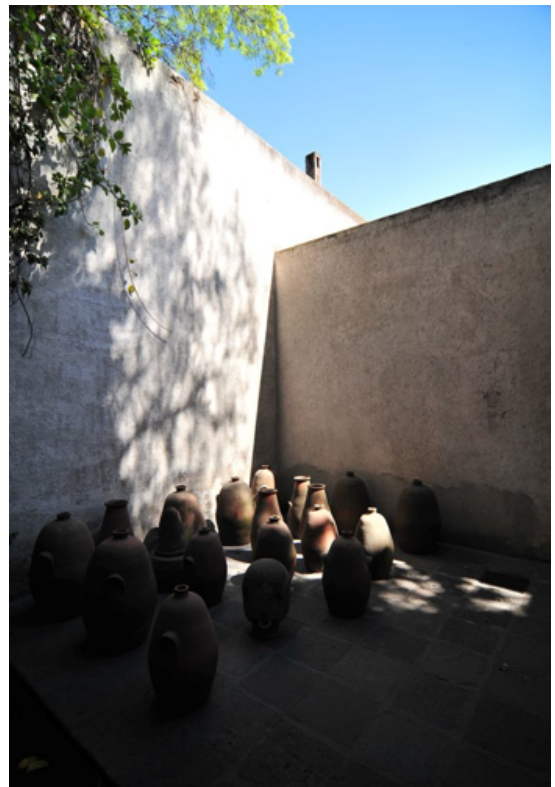
"Consequently, I am only a symbol for all those who have been touched by Beauty."

Barragan is also complaining about publications that have been forgetting to talk about concepts like BEAUTY, INSPIRATION, and MAGIC among others when they talk about architecture and encourage them to talk about SERENITY and SILENCE, these concepts and others have nestled his soul, this is how the architect refers to them. By following the speech we can read the architect talking about religion, Beauty, Silence, Joy, Death and Gardens, and he describes what he finds on each of them and how he is linking all that to architecture. The text is full of sensitivity but what I found on it that is related to what I'm looking is his concern for human's connection to the inner soul. Some

other concepts like Nostalgia can be read on the text, and how important is to dignify human existence.²⁴

All this is important for this thesis because the result is trying to follow the path for spirituality in architecture, and nowadays I am more and more convince that all designer should at least try to connect design to it.

...
"CONSEQUENTLY, I AM
ONLY A SYMBOL
FOR ALL THOSE WHO
HAVE BEEN TOUCHED
BY BEAUTY"
...



ALVAR AALTO

Alvar Aalto is always a good and enormous inspiration in many aspects, although this thesis is only analyzing Alvar Aalto's relationship to the well being. His concepts and ideas are briefly described in this thesis because it has been a strong source of inspiration.

Same as Luis Barragán, Aalto was showing his concern to humanize architecture and design, on the other hand, is important for this thesis, Aalto's principals such as user-friendly and functionality in his architecture and the thesis aiming to achieve this. It is also important to mention that the architect was not only concerned about humanism but also environmental values.

A complete thesis only related to Alvar Aalto's architecture could surely be developed but since here we are just expressing his point of view regarding well being, a selection of quotes was made. Here are some of them:

"Functionalism is only justified if it is expanded to cover psychophysical areas too, this is the only way to humanize architecture."

"We should work for simple, good, undecorated things, but things which are in harmony with the human being and organically suited to the little man in the street."

"The ultimate goal of the architect... is to create a paradise. Every house, every product of architecture... should be a fruit of our endeavor to build an earthly paradise for people."

...
"FUNCTION-
ALISM IS ONLY
JUSTIFIED IF IT IS
EXPANDED TO COVER
PSYCOPHYSICAL AREAS
TOO, THIS IS THE ONLY
WAY TO HUMANIZE AR-
CHITECTURE"
...



4.1.2 COMPANIES WHICH HAVE CONSIDERED PEOPLE'S WELL-BEING

Nevertheless, if we take a fast look in some companies that have been taking care of the well-being, there has been a few in Finland related to it. For this reason just briefly, is pointed which companies and how they refer to it.

Iittala is a company which is always emphasizing how important human well being is, therefore the company has been an important reference for this thesis research. For this I want to quote the following sentence: "essential objects that are made to enrich people's everyday lives" sure they do, for some reason when you see their products you feel this. The problem is that they don't exactly explain

how to achieve this, but this is what we, as designers do. They have this other quote in which same idea is represented: "Products that bring enjoyment and pleasure to everyday life"

...
"ESSEN-
TIAL OBJECTS
THAT ARE MADE
TO ENRICH PEOP-
LE'S EVERYDAY
LIVES"
...

...
"PROD-
UCTS THAT
BRING ENJOY-
MENT AND PLEAS-
URE TO EVERY-
DAY LIFE"
...



TAPIO WIRKKALA



ALVAR AALTO

Marimekko is another company that takes the well-being in consideration, and we clearly see it in the quotes they use, like the following: “We create products that bring people joy”

Both of them are reflecting that these two brands want to give happiness to people, or at least they are using psychology to brand their products, but I notice in their products that people can actually find the joy or pleasure, they succeeded on it. Is really interesting how in Finland the big companies and most known are considering this aspect and they are also successful companies, but none of them actually explain it, but it is just obvious when you see the products. How to achieve this? Using beautiful materials and esthetic shapes, providing them with functional objects for the everyday life. I understand that this is one way to make people feel better, so in a way I wanted to take this as a consideration for my product.

...
“WE CREATE
PRODUCTS THAT
BRING PEOPLE
JOY”
...



4.1.3 HOW CAN PLANTS MAKE OUR EVERYDAY LIFE BETTER

WELL-BEING FROM A DIFFERENT PERSPECTIVE.

HERBS:

Why is important to eat herbs? They not only taste good and make meal better, but also are really important for their medicinal properties; here is the description of some herbs and how they improve our health ²⁵:

DANDELION

-The meaning of the plant is already REMEDY, so that explains its high level of proteins, calcium, iron and vitamins A, C & D. Besides, the root of the dandelion has diuretic properties, appetizers, laxatives and cleansing and tender and fresh dandelion leaves are highly nutritious, help increase the production of red blood cells, eliminate uric acid and regulate blood pressure. Furthermore, it is very useful for good health of the liver and kidneys.



BASIL

-Some of the benefits we get from eating it are; prevention of flatulence, loss of appetite and assists in against gastrointestinal spasms, is diuretic, digestive and helps with skin wounds.



PARSLEY

-It contains a lot of nutrients (it is an excellent source of vitamin C and rich in vitamin K), and its healing powers may be useful in preventing flatulence and bad breath. It has also traditionally been used to increase the secretion of urine by the kidneys. For its diuretic action parsley is helpful in fighting infections of urinary tract, to prevent and / or treat kidney stones and to combat edema. It is also a digestive.



PURSLANE

-Purslane leaves contains large amounts of Omega-3 fatty acids, as well as vitamins A, B, C and E, calcium, magnesium and proteins. They work as a laxative, diuretic, anthelmintic and remedy for intestinal problems; it is also refreshing, soothing and anti-inflammatory.



RED CLOVER

-This medicinal herb is used as a treatment for coughs, bronchitis, hormonal imbalances, anxiety and spasms.



ROSEMARY

-This medicinal herb improves mood, helps with concentration and memory and also eliminates bad breath. The rosemary tea is often used to relieve pain joints, bones and muscles and relieve anxiety and headaches also attributed analgesics, diuretics and antioxidant effects.



SALVIA

-Provides, among other things, a great relief for inflammation in the mouth and throat pain and helps halitosis. It also has stimulant properties: activates blood circulation and balances the nervous system, among other things.



Another way to make people feel better in a realistic way is with plants, there has been a recent study by the NASA that proves that having plants in interior spaces can purify the space facilities, so that means that plants not only increase the way the space look. Based on this study, the thesis is describing the different plants and what are the benefits we get from them.^{26, 27, 28}

Aloe
(Aloe vera)

-This easy-to-grow, sun-loving succulent helps clear formaldehyde and benzene, which can be a byproduct of chemical-based cleaners, paints and more. Aloe is a smart choice for a sunny kitchen window. Beyond its air-clearing abilities, the gel inside an aloe plant can help heal cuts and burns.



Spider plant
(Chlorophytum comosum)

-Even if you tend to neglect houseplants, you'll have a hard time killing this resilient plant. With lots of rich foliage and tiny white flowers, the spider plant battles benzene, formaldehyde, carbon monoxide and xylene, a solvent used in the leather, rubber and printing industries. As an added bonus, this plant is also considered a safe houseplant if you have pets in the house.



Gerber daisy
(Gerbera jamesonii)

-This bright, flowering plant is effective at removing trichloroethylene, which you may bring home with your dry cleaning. It's also good for filtering out the benzene that comes with inks. Add one to your laundry room or bedroom presuming you can give it lots of light.



Snake plant
(*Sansevieria trifasciata* 'Laurentii')

-Also known as mother-in-law's tongue, this plant is one of the best for filtering out formaldehyde, which is common in cleaning products, toilet paper, tissues and personal care products. Put one in your bathroom — it'll thrive with low light and steamy humid conditions while helping filter out air pollutants.

So in conclusion it might be that if you provide people with esthetic objects and beautiful materials, where they can then add some of this plants, the result has to be just pure joy and satisfaction for them.



Golden pothos
(*Scindapsus aures*)

-Another powerful plant for tackling formaldehyde, this fast-growing vine will create a cascade of green from a hanging basket. Consider it for your garage since car exhaust is filled with formaldehyde. (Bonus: Golden pothos, also known as devil's ivy, stays green even when kept in the dark.)



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5 SUSTAINABILITY.

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This is the last research part for this thesis and the best way to finish is to talk about sustainability. The research for this thesis has been going through different elements in Design and one of the most important search on this paper is the human connection to the inner soul and spirituality. It called my attention that doing the research about sustainability I found the book "Sustainable by Design" by Stuart Walker. One of the chapters of this book, number 7, is called: Design, Sustainability and the Human Spirit.

The author in this book talks about the other half of the society, but he refers to the half that cannot be found externally, the half that can only be found internally – the creative, the imaginative, the ethical and the spiritual. This is very important for the developed of the design proposed on this thesis because is trying to connect to this part of human society. The product developed for this thesis aims to connect to this spiritual side in many ways; small rituals that force people to interact with the product, users interact with it by using water, taking care of

herbs, grow plants and throw a low tech element that is not only saving energy with the use of leed system battery for light but it also recycles water and connect humanity to nature.

Design can be regarded as bridge which connects the two sides of human nature, the inner and outer sides, this is because design cannot be only artistic nor fully utilitarian. Art for instance is an activity that is mainly created for the soul but design needs a function, therefore if the design is aesthetic goes to both sides, the functional and the spiritual. This should be our task as designer.

Stuart Walker in his book is also talking about the re-orientation of product design and production to achieve a more balanced and holistic approach. The product for this thesis tries to achieve this, furthermore one of the principles in sustainability point us toward a greater emphasis on local production and the proposal made for this thesis embraces this by giving the people a system to grow their own herbs.²⁹

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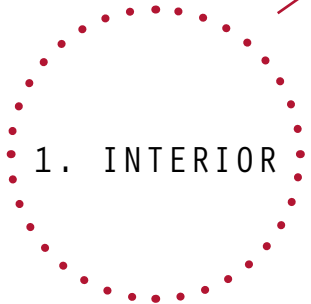
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6 PROPOSAL.

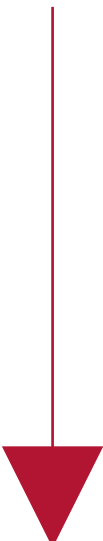
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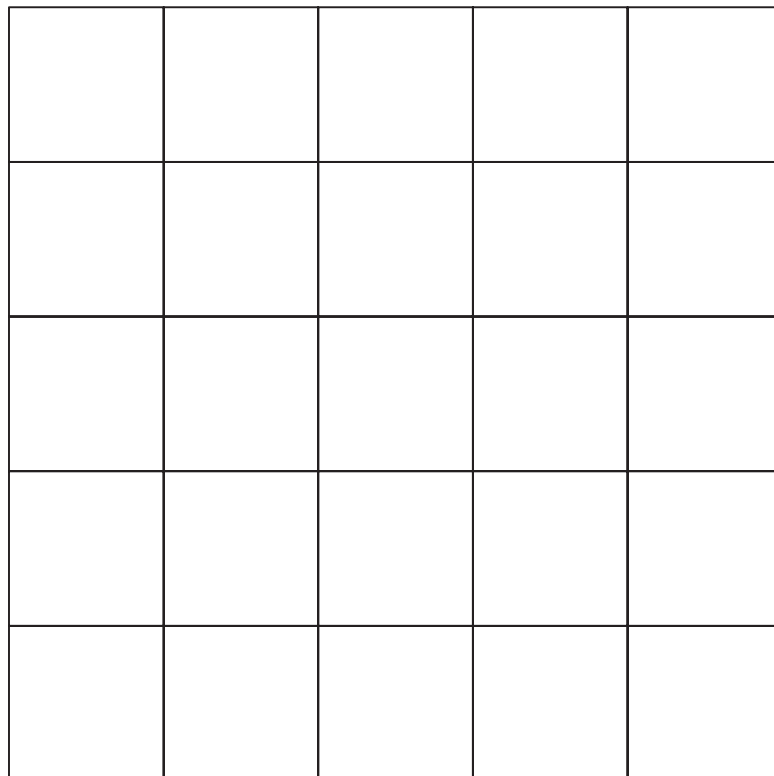


2. EXTERIOR



SARA PEREYRA

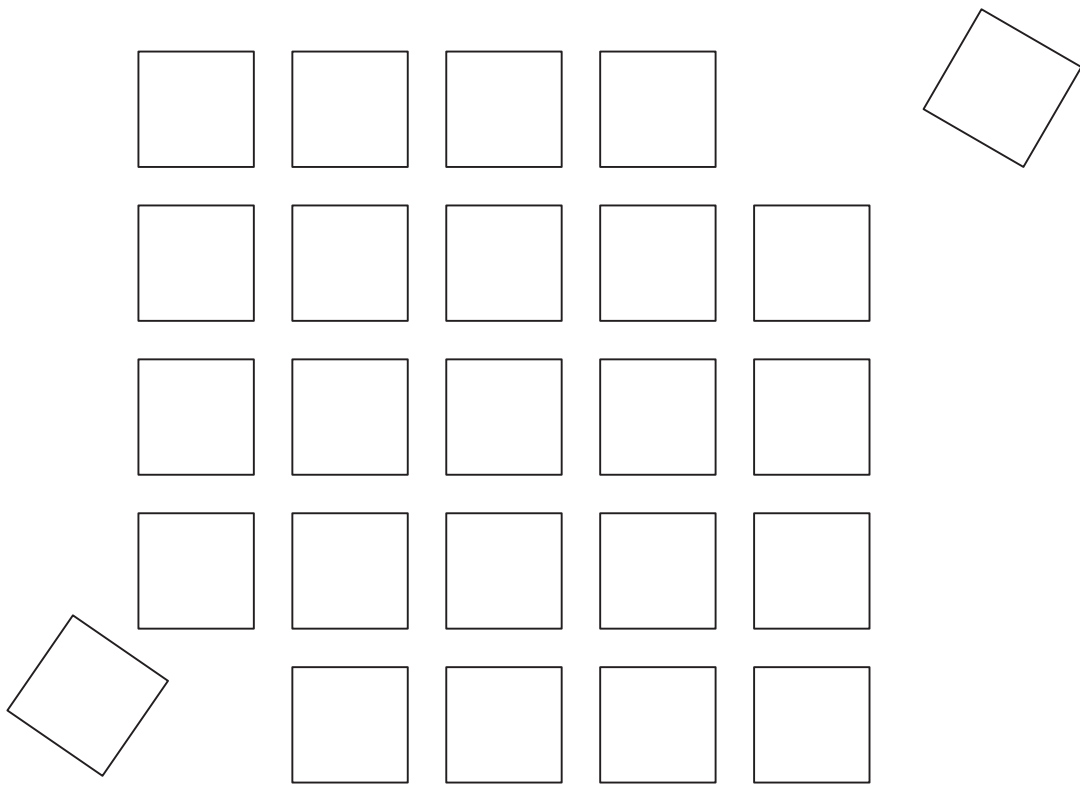
INTERIOR DESIGN APPROACH
CONCEPTUAL INSPIRATION
"THE GRID"



Theo van Doesburg (1883-1931), was a Dutch artist, founder of the De Stijl movement. Taking inspiration on the concept of the "GRID" developed by the Dutch artist, where a grid is described as a structure that articulates space according to a pattern of oppositions; vertical and horizontal, top and bottom, orthogonal and diagonal, and left and right.³⁰

Based on this idea, the design starts by creating an imaginary grid. It is said imaginary because in reality this grid will become a real metal 3 dimensional structure that will be described later.

MODULARITY

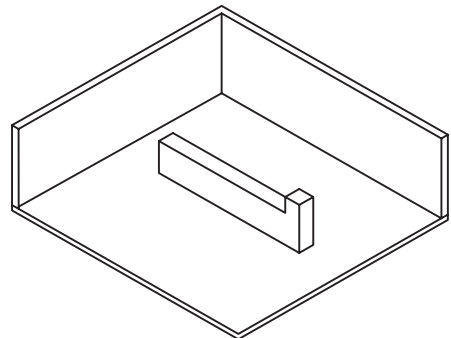
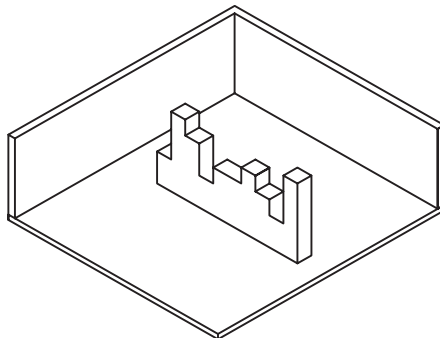
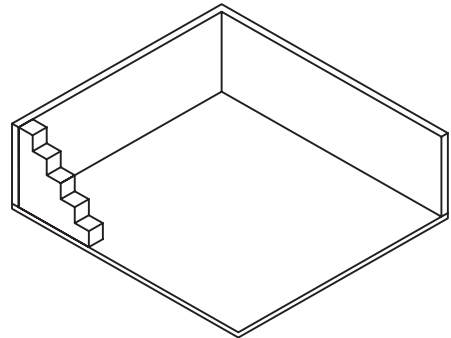
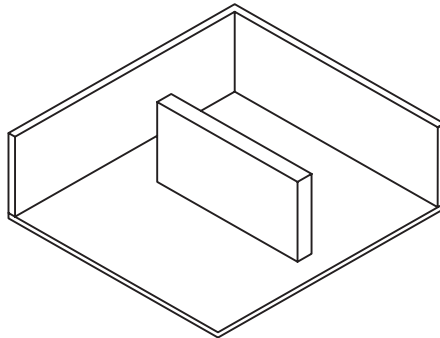
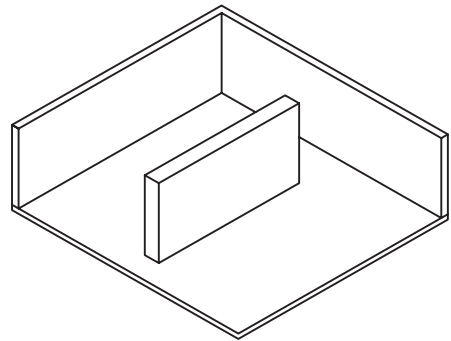
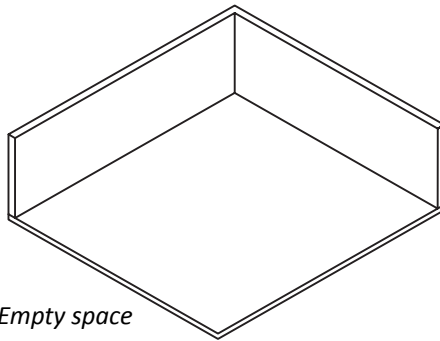


The research for this thesis is emphasizing the importance of MODULARITY and FLEXIBILITY, therefore the “imaginary” grid needed to satisfy these requirements.

FLEXIBILITY IN SPACE

Now there is a modular grid and the following diagrams explain how this grid would add flexibility to a space. In the options can be observed first an “empty

space” and after this different possibilities for building the wall. The possibilities could be many and the diagrams just show a few ideas.



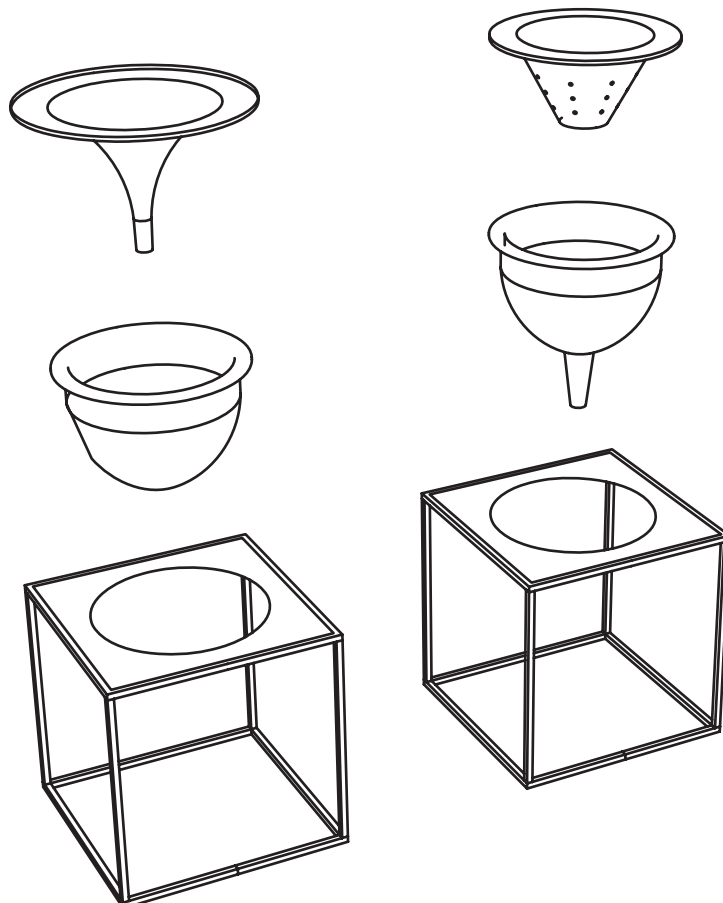
ADDING (A) FUNCTION

At this moment there is; a modular wall that had the possibility to play with the flexibility of a space, but it was still lacking a function, other than divide a space. Now the design is giving the users the opportunity to grow their own herbs, by adding to this “grid” or wall ceramic

pot. The second function for this wall is a light or lamp that not only increases the aesthetics of the space but because of the design it can be mixed with the water for the herbs. More details for both of these pieces are described on the following pages.

*Lighting system*2
OPTIONS

+

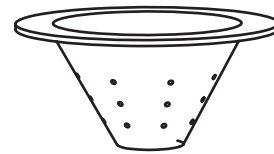
Grow herbs system

ELEMENTS & FUNTIONS

GROW HERBS SYSTEM

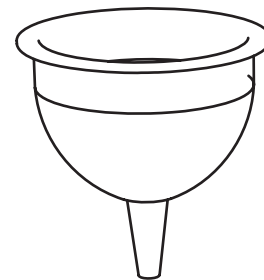
1

Ceramic pot. The function of this piece is to hold the soil and the herbs but also is designed is meant to keep the plant but allows the water to continue its way to the next pot and the next and so on.



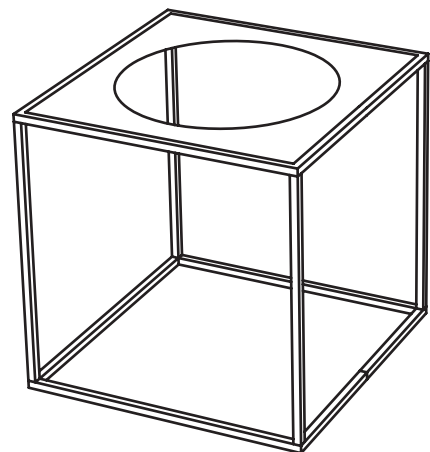
2

The second ceramic piece works as a funnel and forces the water to continue in one straight direction.



3

Inside of the second ceramic pieces there is a metal piece that works as a "faucet" this with the purpose to have the pot as a container and control the amount of water is coming out of it. See detail p. 74.



4

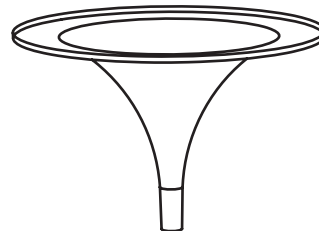
The last piece is a metal box that holds all the pieces and works as a structure to create the wall.

ELEMENTS & FUNCTIONS

LIGHTING SYSTEM

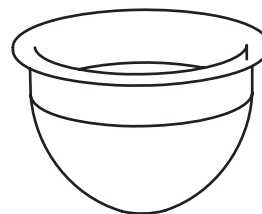
1

The first is a ceramic piece and it is designed to allow and conduct the water to go through and reach the next pot without interfering with the lead light inside.



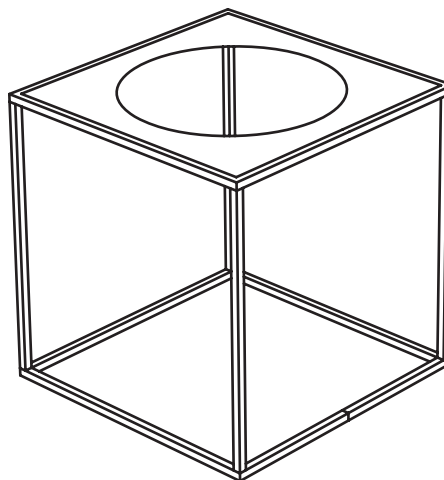
2

The outer piece is sand-blasted glass that gives transparency to the light but hides the details inside.



3

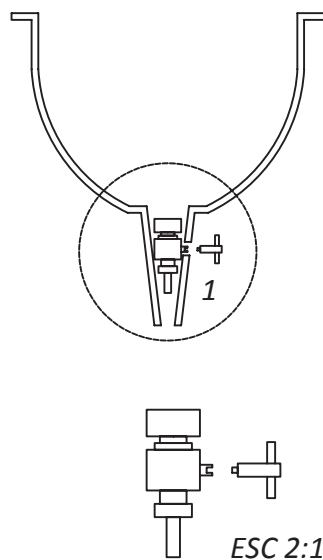
The last piece is a metal box that holds all the pieces and works as a structure to create the wall.



4

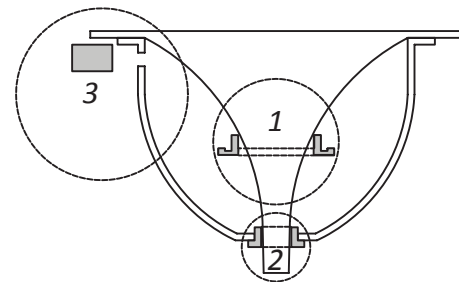
This piece has 3 details, one box that is attached to the metal frame, this box keeps the battery and the on and of button. Second detail is the piece that is holding the leads inside of the glass and the 3rd detail is a wooden piece that holds the ceramic and glass together. See details p. 74.

DETAILS
A) GROW HERBS SYSTEM

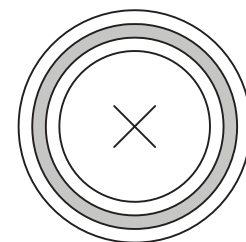
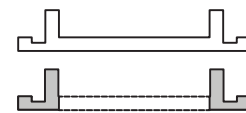


a-1. There is an important detail in the pot, it has a piece that allows the user to control the amount of water coming from it. The piece can be changed in such a manner that the water would be completely blocked, dripping or completely open. This piece is important because it is giving the user a low tech system which is forcing the person to interact but is also really good for the function of the wall. The idea is that the first pot could be just dripping, so the water would continue to the rest of the pots but the last should be closed, so it works as the container of the water. This is also related to recycling water and the users can always re-use the water that was left on the pot, for the next time. It was important to keep it low tech to give the users "little rituals" and force them to take care of things and enjoy.

DETAILS
B) LIGHTING SYSTEM

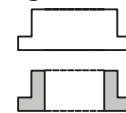


b-1. This piece is attached to the ceramic pieces and has the street to hold the lead.



ESC 2:1

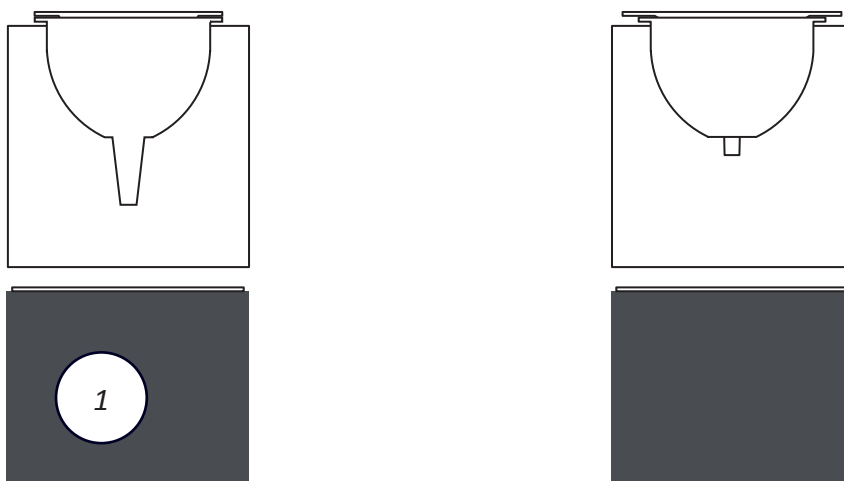
b-2. This piece just keeps the ceramic and glass together.



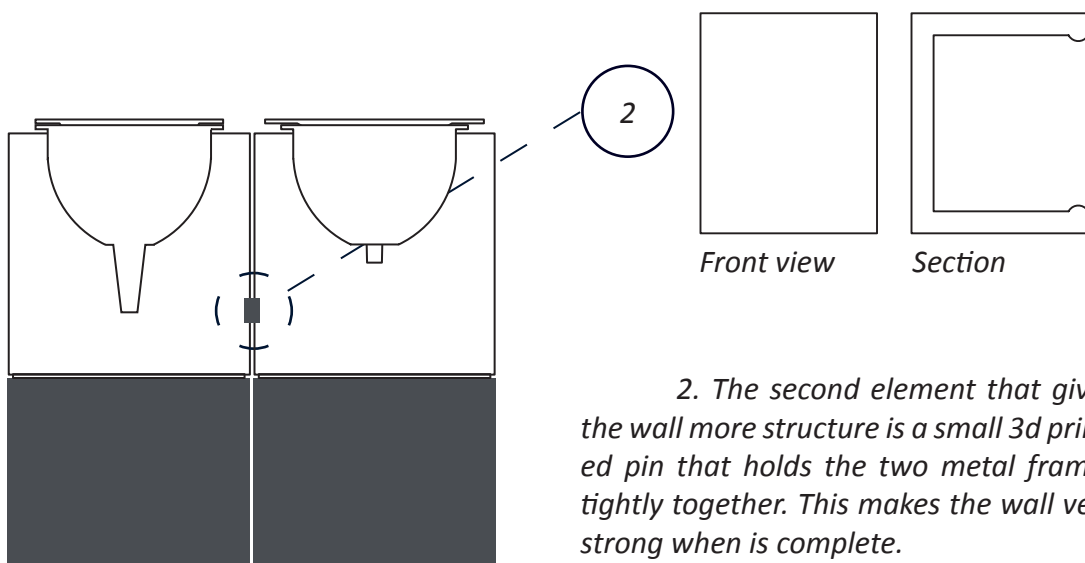
ESC 2:1

b-3. There is a 10 mm hole in the glass that let the cable out and this goes to a box attached to the metal frame where the battery is hidden, the small box has the on and off button.

STRUCTURE

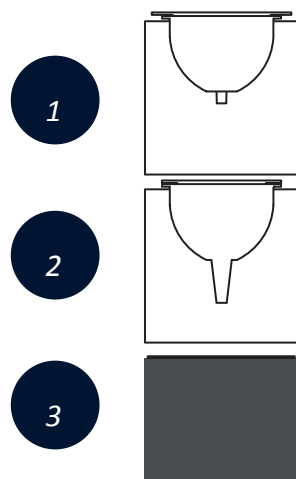


1. In order to get a good structure for the wall, something strong was needed at the bottom to support all the boxes, the best solution was a 250mm MDF box cover with veneer. Other possibility was a solid wood box but because it was combined with the metal frame, this was risky because the wood would eventually shrink. This box has a 5 mm profile where the metal frame sits tightly and gives a strong structure.



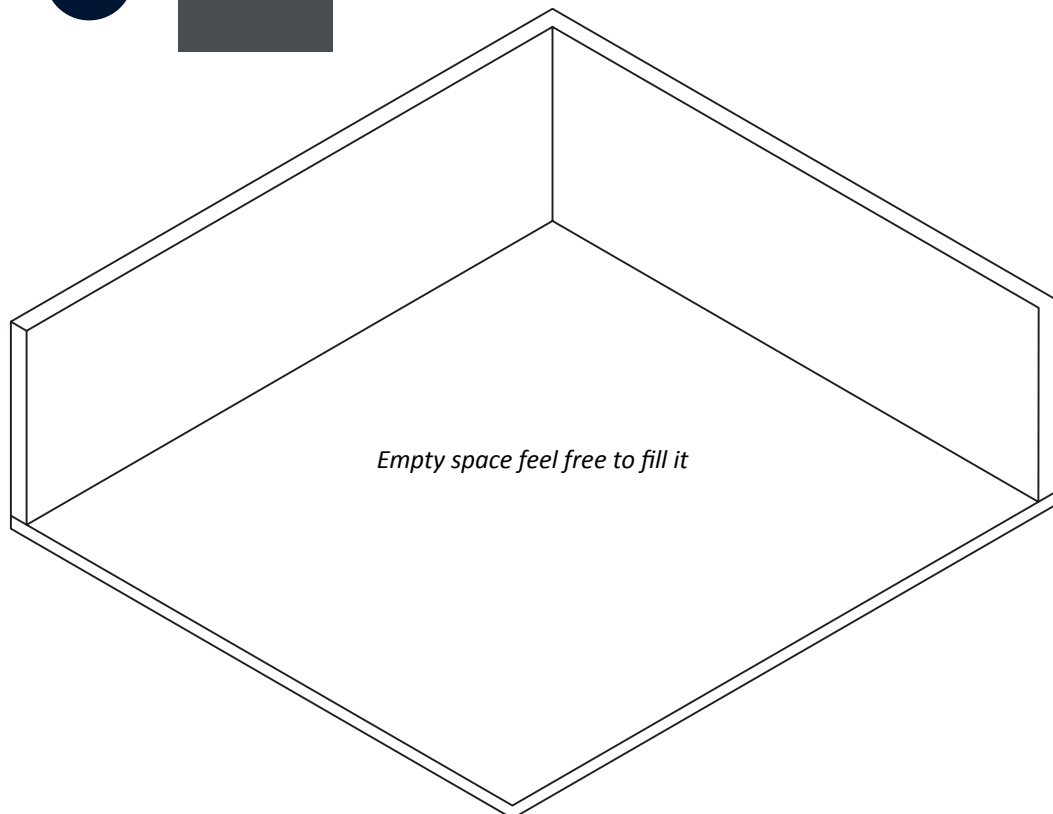
2. The second element that gives the wall more structure is a small 3d printed pin that holds the two metal frames tightly together. This makes the wall very strong when is complete.

DO IT YOURSELF
&
INTERACTION



At this point we have all the elements and from this moment, people can decide. It was important for this thesis to collaborate with the users. Nowadays people should feel identified with the product they buy, I believe that designers now should give users possibilities to decide, and according to their preferences use the product, for me this is an important collaboration.

Now here is a diagram that shows how this is happening:



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FIRST PROTOTYPE



Photos by Chikako Harada

The prototype was not modular, that was the first thing that needed to be changed. Based on that there were many technical details to fix.

-Second thing was that the idea of the product was to create something multi-functional, so more functions had to be

added.

-Third thing, visually, the metal pipe used was very thick, so the new prototype was built with a thinner material and the difference is very visible.

-Fourth, this prototype was too white and therefore it was decided to make the



Photos by Chikako Harada

wooden boxes, wood would provide some cosiness but also it was an important element to give structure and strength to the piece.

-Last thing changed was the water system, initially the idea was to have a water pump, but in a conversation with my tutor,

the decision to add an element that would allow the users to control the water was made, this would force people to have interaction with the product, but also is a low tech element that recycles the water, so the product is eco-friendly.

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SECOND & FINAL PROTOTYPE



Photos by Zeno Legner

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DETAILS.



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DETAILS.



water
+
lighting system



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DETAILS.



lighting



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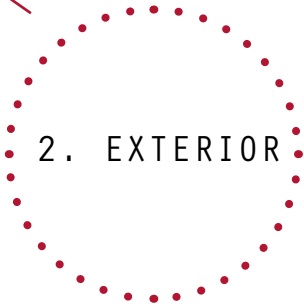
Photos by Zeno Legner

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DIVIDED INTO 2

1. INTERIOR

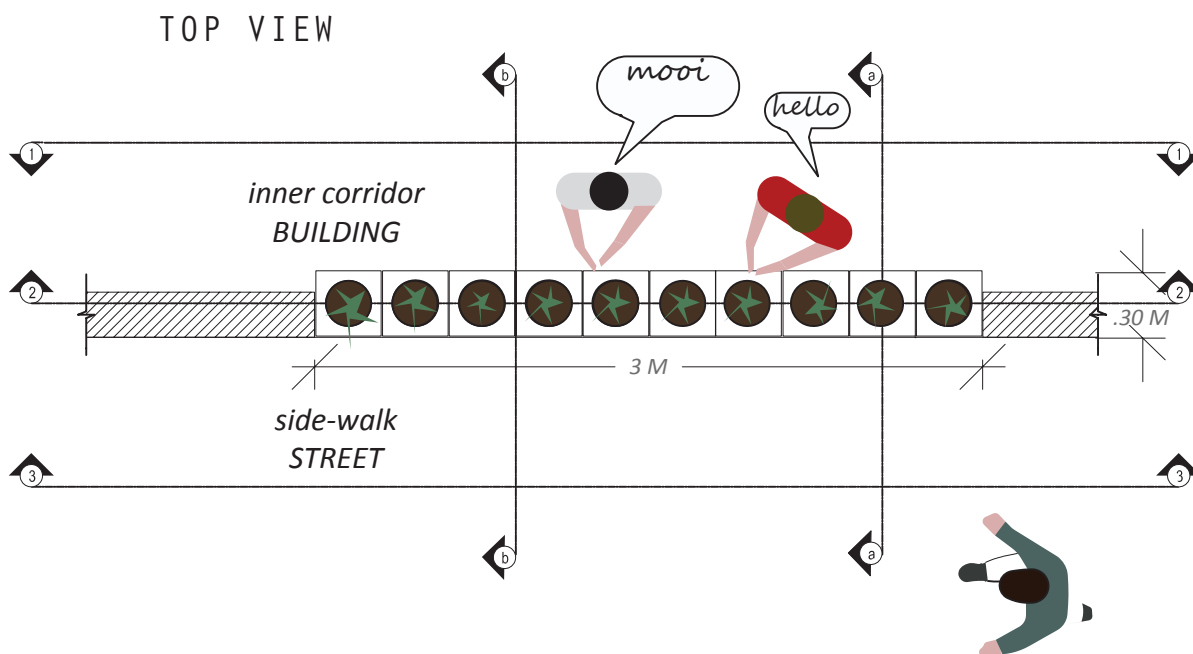


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EXTERIOR DESIGN APPROACH SOCIAL INTERACTION

As a side project the thesis is proposing an element that would work as a lattice for a façade. This element has to be further developed in collaboration with an architect or an engineer. The diagrams, drawings and details propose in this thesis are still in a conceptual stage. The hydraulic equipment for the herbs in this wall have to belong to the hydraulic system in the building. A few details of the project can be found in the following pages.

Unlike the interior design project, this wall is meant to be fix and welded on site, and is not modular or changeable. The main goal on this wall is to promote the social interaction within the inhabitants of a building and provide them with a function. This aims to force people to interact but also gives them element to grow their herbs and share.



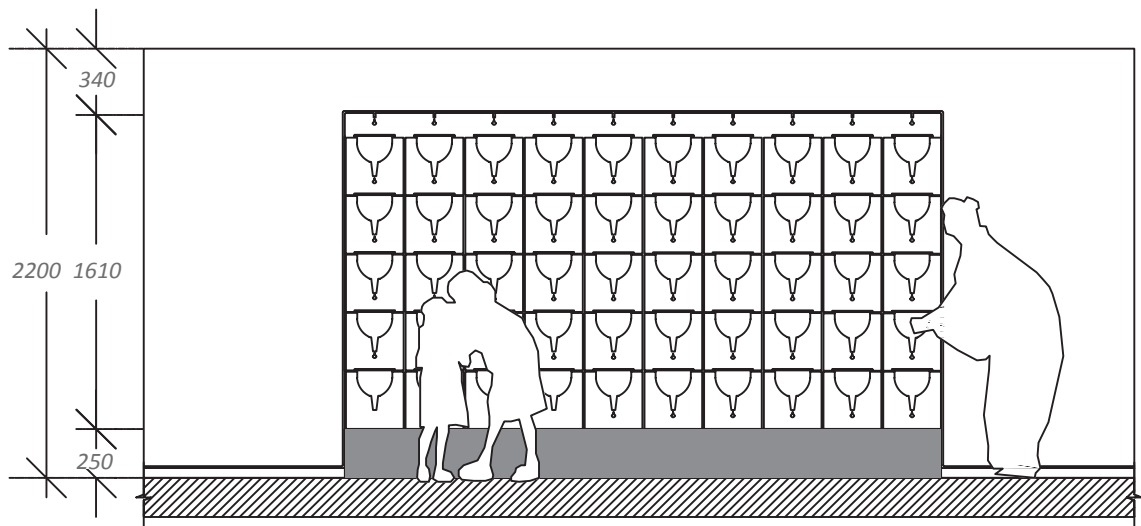
SOCIAL INTERACTIONS

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Because this wall is placed in an outdoor space, instead of wood, the material for the bottom of the structure would be concrete and the only element for it is the ceramic pot to grow herbs, because the lighting system would have to be developed in a different way.

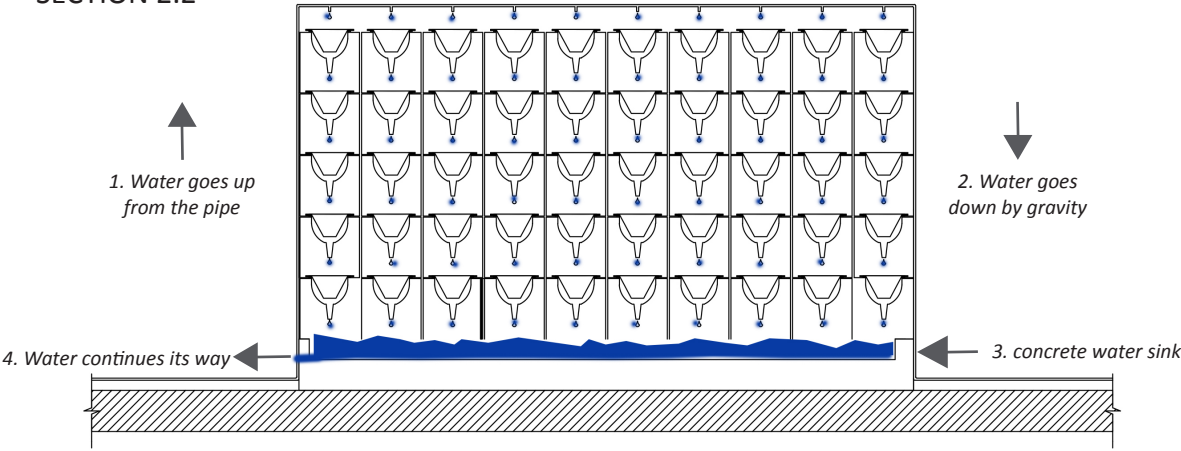
The idea with this wall is to promote social interactions among the neighbours by doing something good for themselves as for the community.

SECTION 1.1 + 3.3

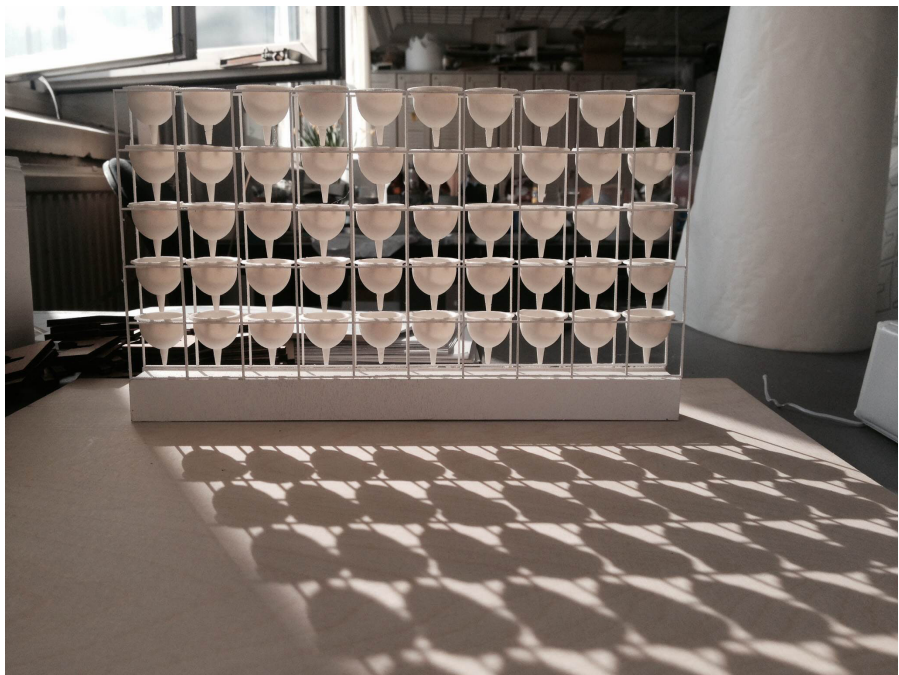


WATER SYSTEM

SECTION 2.2

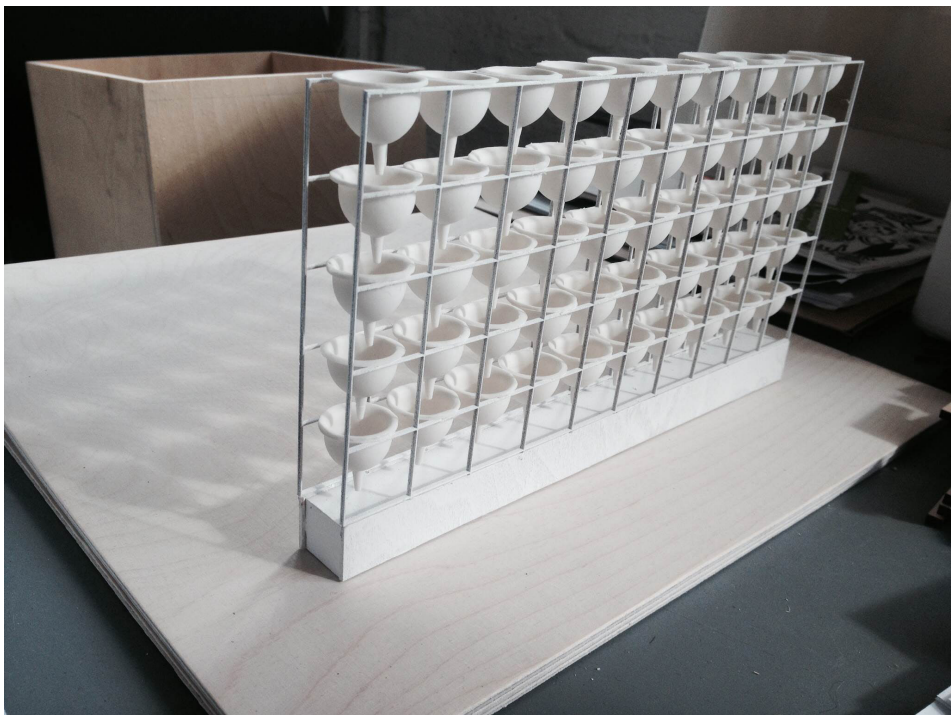


SMALL MODEL STUDY



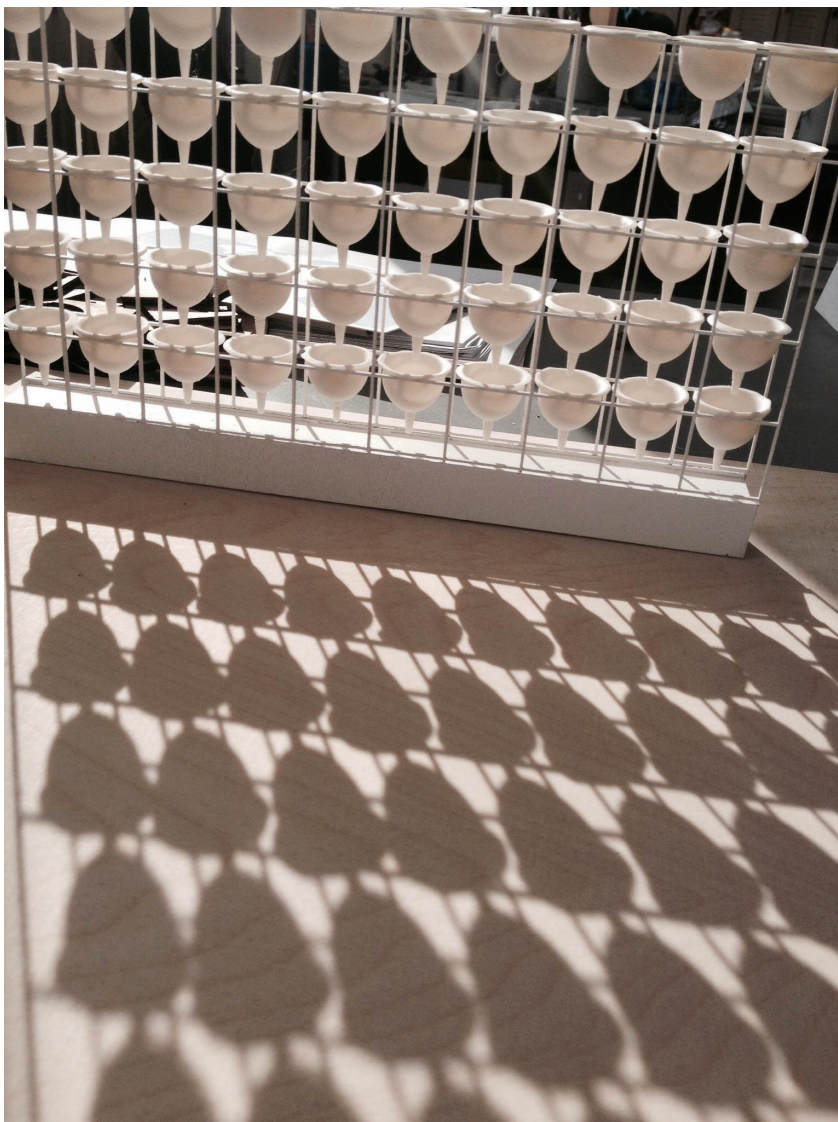
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SMALL MODEL STUDY



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SMALL MODEL STUDY



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7 PRODUCTION & MATERIAL.

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MATERIALS

I have to confess that one of the most challenging parts of this thesis was working with different materials, therefore it was important for me to use some pages to describe my experiences with each of them.

First of all, I discovered that materials are really stubborn, each of them have completely different characteristics and processes and when you combine them together, the result could bring a few nightmares. But I think is very important for a solid career as a designer, get to know them. Aalto University has a really high qualified master studios and workshops, so my explorations were at the end successful, thanks to that. I always say that workshops for designers are like churches for religion, it is at the workshop where you find the solutions and better ways to improve things. And you have to

consider many things, think every step at least two times before doing, because after many mistakes you realized that you have to think before, and you would save time and energy. Otherwise you have to repeat everything from zero, that happened many times while developing my prototype and still, there are many things that could have done better and more careful.

I'm happy with the result of the thesis and the material explorations, the process are described in the following order:

1. Plaster
2. Ceramic
3. Glass
4. Wood
5. Metal
6. CNC Machine
7. 3D Printer
8. Laser cut

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7.1 CERAMIC

* THANKS TO TOMI PELKONEN

-PLASTER / DISASTER

Before starting any work with ceramics, you have to first meet the “plaster room” I always call it disaster, and this is for me, one of the most complicated process in the ceramic work.

Ceramic’s molds and models are made out of plaster, therefore, once you have the final idea and drawing, first you have to go to the plaster room, prepare your paste and start moving the wheel.

First difficulty I had with plaster was the size of my pieces, the bigger the piece, the more complicated.

You have to be very fast because the plaster gets hard quickly and once is hard there is nothing you can do. Only start everything all over again, and then you also understand that you will never get anything done at first, I guess for every model I had to do it more than 5 times, and some of them I just couldn’t have them done without the help of the Master Studio, Tomi Pelkonen.

Second complicated thing was, due to the

fact the first shape (bigger pot) was so big, the mold for it was huge and heavy, and that made the casting process a nightmare.

For the inner pot, I didn’t find almost any problem that was an “easy” one, just that the holds all the small holes to filter the water were handmade, that was the tricky part.

Last thing I had to face with plaster, was the inner lighting part (image above).

The problem here was the super thin ending part, it was so easy to break, I had to make it 1-3 times and never worked, and then again we finally had it ready with master’s studio help.

Anecdotes

I had 2 funny accidents with plaster, when they happened they were not as funny as they are now, but I thought it would be nice to have them as part of my thesis.

First thing that happened, was that when I had everything ready and set just to pour the plaster to make one of the models, it turned out that the plaster was still liquid

when I remove the metal ring that was holding it, I felt it was collapsing a bit, but still put the wheel on, which I didn't know was in a super rapid speed, after that I just heard the plaster was exploding against everything around me, by the time I stopped the wheel, the room was in a complete mess.

Second thing that happened was that, the one shape was so complicated to make, when I finally made the mold for it, wait the needed time, and finally was trying to take it out from the mold, went to ask for help and I was trying to explain the person the situation, when I guess the model was already a bit loose from the mold, it didn't take even more than 20 seconds when the shape came out and broke! But that wasn't a problem anymore because the mold was intact. (Image here)

-CERAMIC

Working with ceramics was a little bit better than plaster.

Although in ceramics you have other million difficulties, I didn't face any dramatic one.

It was of course hard to cast, again, because of the size of the molds, and the

pieces were bending a bit when they were inside the kiln.

The process for the ceramics is first you cast it, depending on the thickness you want to get is the time you leave the clay inside.

After that when you empty the mold, you already have a thin layer of clay inside, you wait for it to dry, until you can finally remove the shape from the mold, then you wait for a day or so, remove the extra lines made from the casting process and the piece can go inside the kiln for the first time, this fire is called the bisque fired and the temperature for it is around 700°.

After this, you finish it a bit by sanding it if needed, glaze it and then it goes to kiln again, this time the temperature will be up to 1250°.

My pieces were bending inside the kiln, that is why they are not perfect, but I learned that there is no perfection in ceramics, and that is actually what makes the material and the result, more unique and beautiful.

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7.2 GLASS

* THANKS TO KAZUCHI NAKADA

Glass blowing was a process from which I could learned and understand the material by seeing, unfortunately if you would actually like to learn to make pieces by yourself it would take ages.

Nevertheless thanks to the ceramic master Kazushi Nakada, I was able to help in the process and do the cold work, like cutting the glass, sanding it and sand blasting.

There was also many details changing in the process, I changed the design because

I couldn't have the result I was expecting, but as it happens in all the workshops, you start analyzing everything more wisely when you get to know the characteristics of the material and what are the possibilities the changes you always bring better results.

Different than ceramics, with glass you have to be fast while making the piece, because the material doesn't wait for you.

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7.3 WOOD

*THANKS TO MARTIN HACKENBERG
VILLE ARKONKOSKI & ARTO SILLANPÄÄ

I have to admit that wood might be one of my favorite materials, but the true fact is that is super stubborn.

All materials are stubborn, but I guess wood is the most and you have to be very careful when you are combining different materials in one design.

Here I had to face the most difficulties, not in the production side but in my design.

In this workshop I also got a lot of help from the ceramic master Martin Hackenberg.

The initial idea was to make the pieces out of solid massive wood, but due to the fact that wood expands, everything was going to be complicated.

After long conversations with martin about it, we concluded that solid wood was not a good idea.

The reasons were many, but most important was that the wood expands, and I have the metal sitting on it, but also the wood is going inside the metal, and this, with time was going to start causing troubles.

I wanted to use solid wood also to make it heavy and give the design more structure. But the conclusion was I should use MDF with 25 mm thickness, this is making the box heavy, using MDF avoids the problem

with expanding and then we used veneer to cover it and give a better look.

Anecdotes:

I had a funny experience also with the wood.

Since I was planning to try the solid wood idea, I decided to make then a MDF solid box.

I started gluing all the layers together and when finally got the box, I realized that was super heavy, which was good regarding structure, but was super hard to carry it and the idea of the thesis is to create a wall that people can be able to move every time they want, so this was just bringing more troubles.

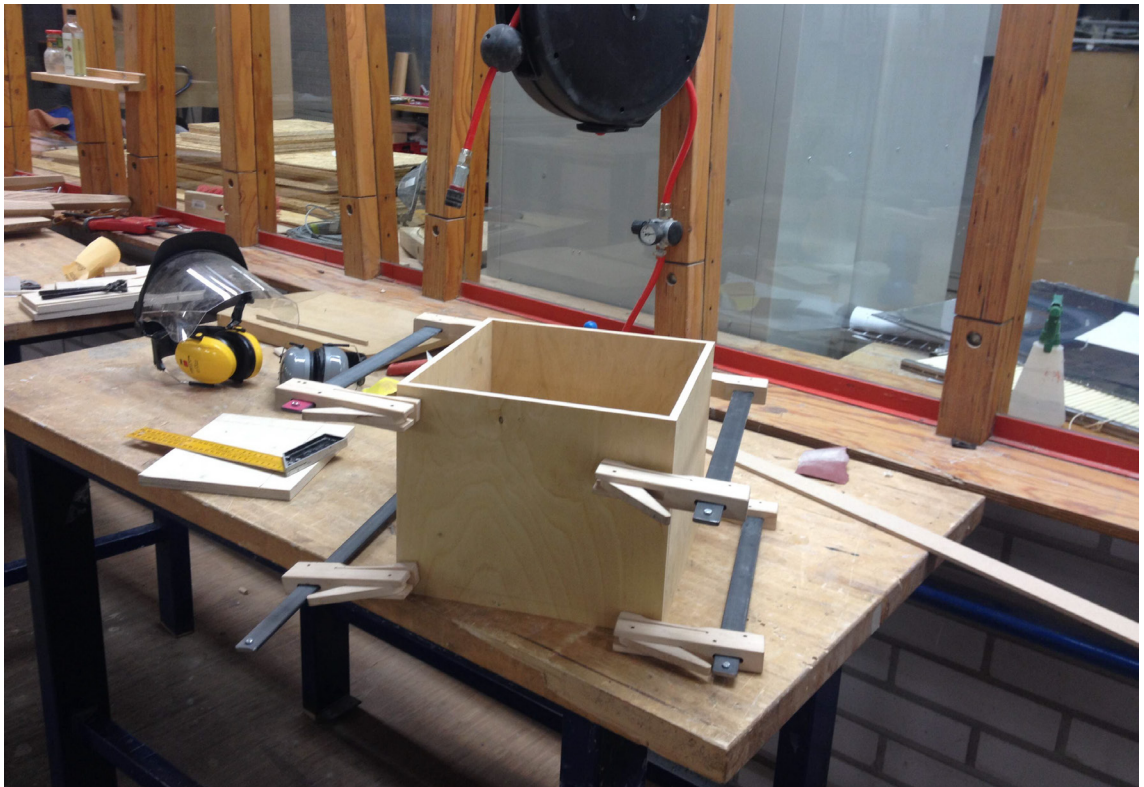
And then I accepted! The best way to go was with normal MDF boxes, so I started producing.

Also for economic matters this was a good options, because we have to conscious when we make design.

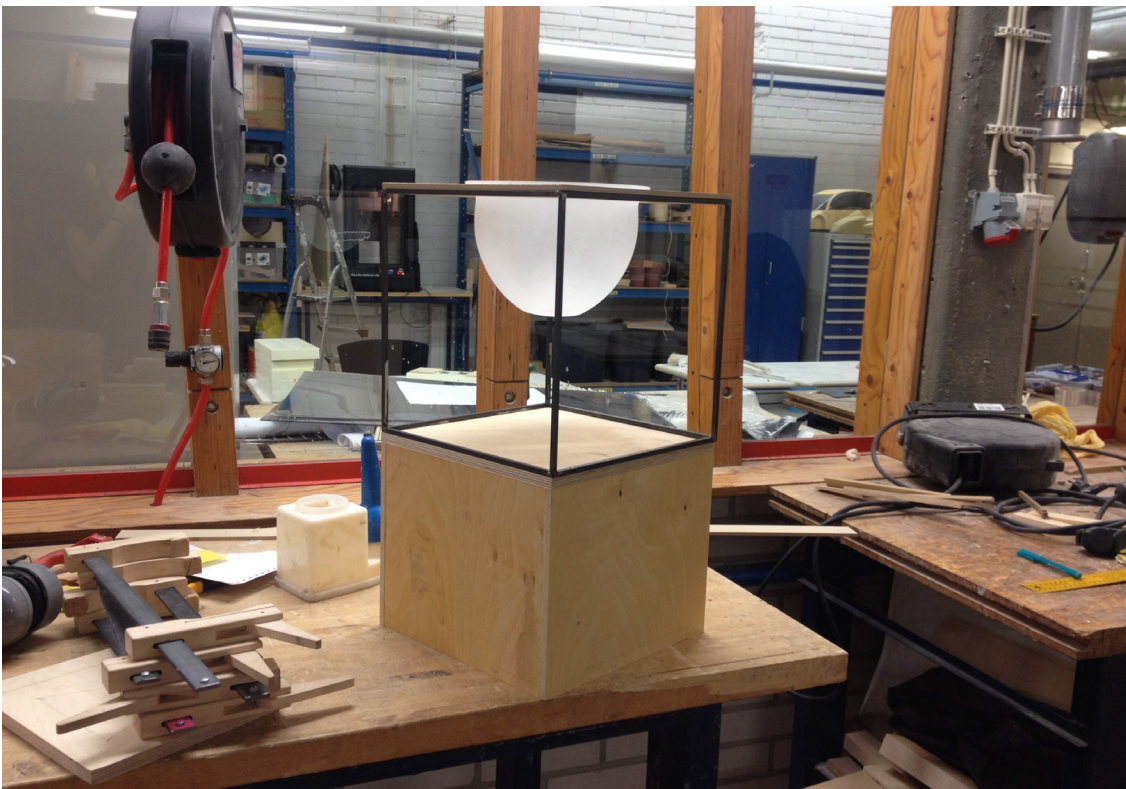
We have to make products that when we choose the materials, have a function and a good reason to be chosen, and not only because they look good but still they don't work for the project, plus it makes it super expensive for the users.

So at the end I was happy for using MDF.

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7.3.1 CNC MACHINE

* THANKS TO HANNU PAAJANEN

CNC machine is a really helpful tool, nowadays designers really depend on this machine to do many things, it really helps for prototyping and for my thesis it was really useful to make the mold for the glass blowing. Basically once you have the 3d-model done, with the help from Martin in the woodwork shop we had the mold cut by the CNC, my piece was quite big for the standard but we found a good piece of solid wood and the machine did its work, all the molds for the glass have to be made out of wood, or at least this is the best material for it. So the CNC machine is the best to get it correct, I actually had one big difficulty from this, the problem came from the ceramic, it is still a mystery, the final piece in glass was smaller than the ceramic piece, and they were supposed to be just the "same" size, if that exists when you combine materials, my mistake was that I didn't pay

much attention to the size of the wooden mold for the glass, since I was using the same drawings, then that meant that the pieces would be just same at the end. So it wasn't until I had the glass piece ready and the ceramic piece ready, when we noticed that the sizes were completely different! My explanation is, I had just one drawing, the same I was using for both, but! When I did the plaster model for the ceramic piece, I made it 12% bigger than the real size of the piece, because as it was described before, ceramic shrinks when fired, so you are supposed to increase the size of the model, but I guess it didn't shrink 12% but less, and when I did the mold for the glass, we didn't from the original size, so at the end that explains why they were just different and you can see from the pieces, fortunately that didn't cause any bigger problem.

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7.4 METAL

* THANKS TO TEEMU MÄNTYLÄ

This has been my first experience with welding and it was not as difficult as I thought, of course the result of the pieces is not as good as it could have been, but I learned a lot. I never thought before that I could actually do the welding by myself. I had also in this workshop a lot of help from Temo and Ville and without their advices I would had never been able to make the pieces. It was the material that I had the least of difficulties, and it didn't take too long to finish. And as in any material process the things that you didn't do carefully from the beginning, turn into a really

hard work to do in the end, in this specific case was the sanding, I tried to do the welding as clean as possible but still when I had to get rid of the extra melted metal it was really complicated and took a lot of time.

7.4.1 COPPER

* THANKS TO JANNE HIRVONEN

The handles for the pot are made out of copper, is one of my favorite materials and I really like the contrast with the whiteness of the ceramic. First I tried to make a 3d model of the handle so we would make a mold and cast it in metal, when I talked to Jane about it, I had my 3d model ready but, again, depending on the characteristics of the material and the opinions from the studio master, your plan might be changed. We decided to do everything handmade and the result was amazing.

After this I still went to 3d print it, I had

booked the time and I wanted to experiment, the 3d printing did not work at all, so I was happy I already had my handmade handle.

From this I learned that you cannot take anything for granted and is always better to two different paths or more if possible and see which work better. Materials are about testing and making mistakes.

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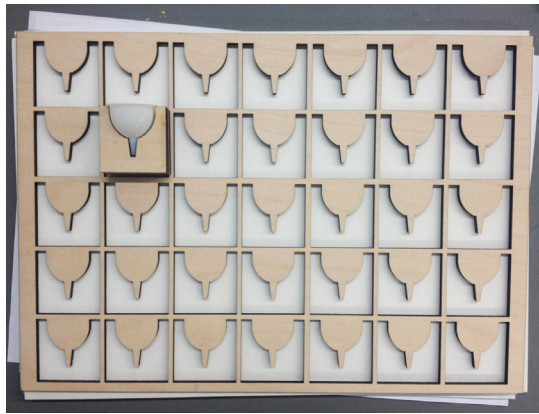


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7.5 LASER CUT

* THANKS TO TEEMU MÄNTYLÄ

The laser cut was used just to have a fast idea of how the screen could look like.



7.6 3D PRINT

* THANKS TO
MARTIN HACKENBERG (WOOD
WORKSHOP), CHARLIE
BANTHORPE (MEDIA FACTORY) &
OSSE FEDERLEY (8TH FLOOR)

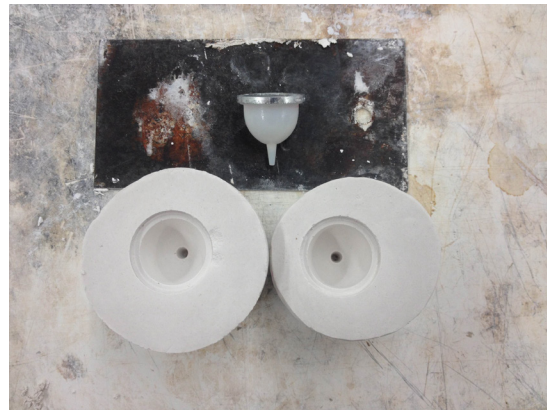
Same as the CNC machine, the 3d printer is getting or it is actually very popular process in contemporary design world, for me sometimes it works and sometimes I feel that it is an expensive waste of time, although I think is the best tool for either fast prototyping or really specific industrial design pieces. Nevertheless for my thesis, it used it for three different things;

1. *For the small model pot, I needed the big pieces in a tiny version and the*

easiest way I found to make them was 3d print the shape and with one piece ready I casted it in plaster and then I started producing in ceramic. This is the best example of combining technology with crafty process and I love it.

2. *The second time I used it for this thesis was to make the holding clip, the one that keep the boxes together and give the wall a stronger structure.*

3. *And I also used it for the handle prototyping, unfortunately this was the only time when 3 printing did not work at all. We failed with this.*



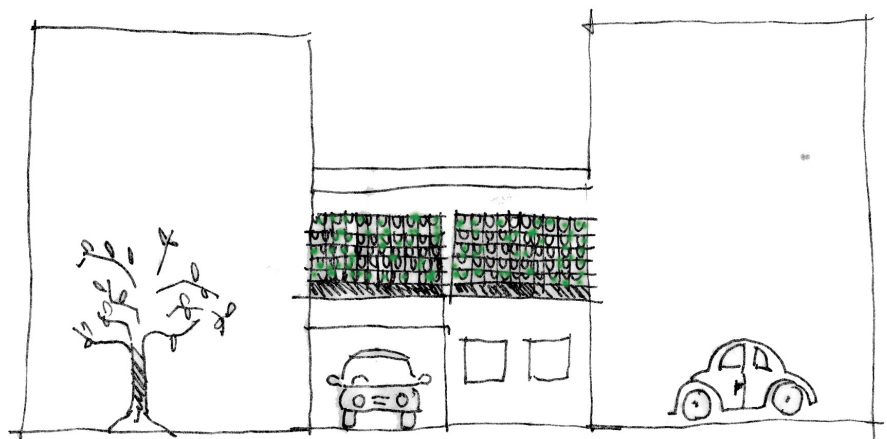
7.7 LIGHTING SYSTEM
MEDIA FACTORY
* THANKS TO
SOLOMON KIFLOM EMBAFRASH

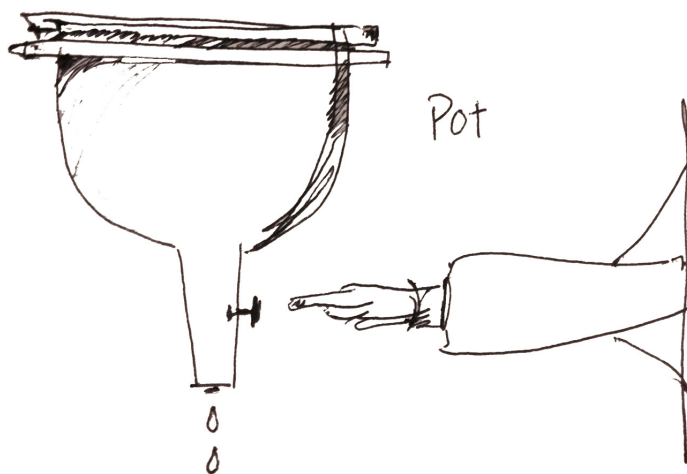
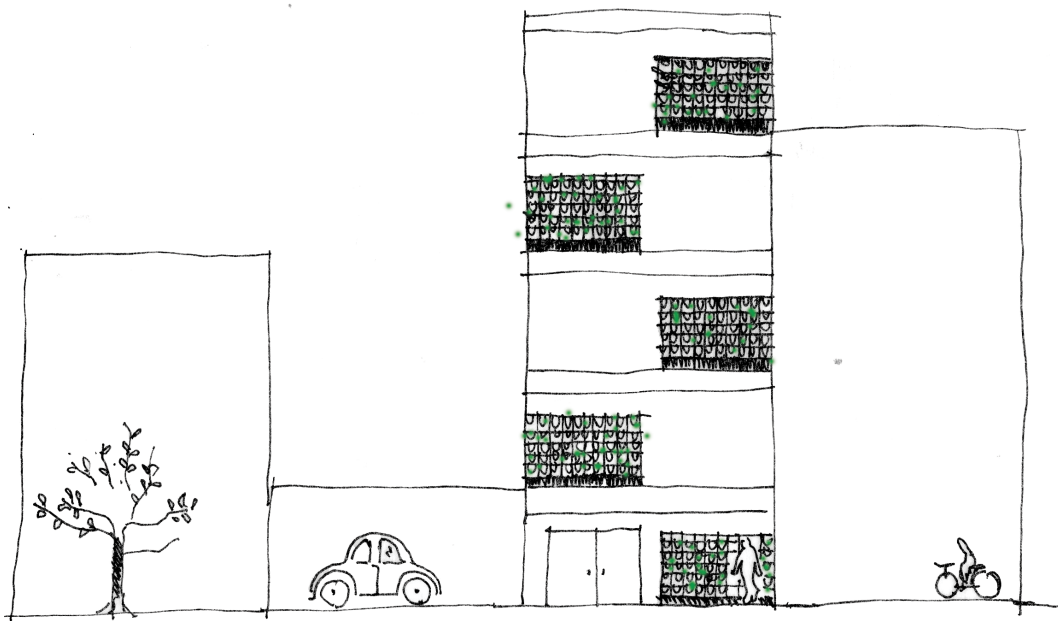
Combining water and electricity is always a big challenge, the first thing was to find the way the water would not be touching the electricity and once this was arranged the second thing was to add the electricity.

The light is proposed in leed to save energy but also to avoid troubles with the water. Another problem we faced was the cables, lights always need cables, but thanks to the help from the media lab, the light works with a battery. This was the best way to make it work.



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8 CONCLUSIONS.

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CONCLUSIONS:

This thesis has been very important for me because it made me realized that this is the theme that I would like to focus my professional life from now and on. It would be very interesting for me to keep doing a research on lattices and space dividers and go to different countries to develop a stronger knowledge on it so as a result I can propose different variations of them. Although I am not sure if this first exercise, covers fully my expectative regarding design, it is a good starting point for following designs, ideas and proposals. I feel that as designers, is important to be a specialist in a specific subject and when you find that is easier to keep developing more things. This has been the most important thing.

On the other hand, working with different materials, made me understand how important is to know the materials, their characteristics and reactions, the processes and possibilities. This is something that teach you the most for any project. I made many mistakes on the processes but I learned the most and I'm happy. Although I'm not sure if in ten years I will still feel proud of this project, it has been really challenging and full of knowledge and this is the learning process.

I'm content and satisfied.

Sara Pereyra

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ARTICLE. EASTERN PROMISE
BY BRIAN CATHELIJNE NUIJSINK
PG. 174-177

18. ARCHDAILY, SOU FUJIMOTO NAMED WSJ'S ARCHITECTURE INNOVATOR OF THE
YEAR.

19. HOW TO BUILD YOUR OWN LIVING STRUCTURE
KEN ISAACS

19.1 CRANBROOK ART MUSEUM
CULTURE BREAKERS: THE LIVING STRUCTURES OF KEN ISAACS

19.2 NOMADIC FURNITURE
JAMES HENNESSY & VICTOR PAPANEEK

20. DWELL MAY 2007
STORY BY LESLIE COBURN
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PG. 141-148

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DESIGN / ART / CRAFT
QUARTERLY OF THE INDUSTRIAL DESIGNERS SOCIETY OF AMERICA
ARTICLE. PUSH PULL TWIST
BY MAGNUS FEIL, IDSA
PG. 18-19

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INNOVATION SPRING 2014 (MAGAZINE)
DESIGN / ART / CRAFT
QUARTERLY OF THE INDUSTRIAL DESIGNERS SOCIETY OF AMERICA
ARTICLE. OUR EXPANDING FIELD
BY SCOTT KLINKER, IDSA
PG. 21-22

INNOVATION SPRING 2014 (MAGAZINE)
DESIGN / ART / CRAFT
QUARTERLY OF THE INDUSTRIAL DESIGNERS SOCIETY OF AMERICA
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PG. 52-54

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GRID, PAGE NUMBER 28

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